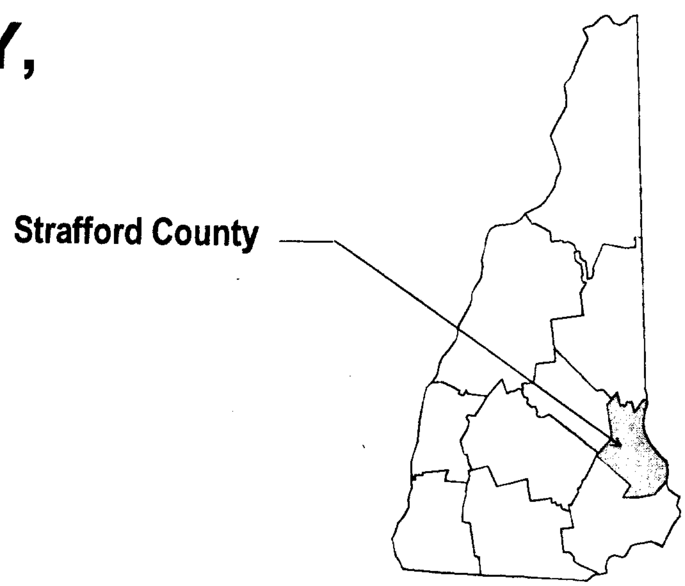
FLOOD INSURANCE STUDY

STRAFFORD COUNTY, NEW HAMPSHIRE
(ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER
BARRINGTON, TOWN OF	330178
DOVER, CITY OF	330145
DURHAM, TOWN OF	330146
FARMINGTON, TOWN OF	330147
LEE, TOWN OF	330148
MADBURY, TOWN OF	330219
MIDDLETON, TOWN OF	330222
MILTON, TOWN OF	330149
NEW DURHAM, TOWN OF	330227
ROCHESTER, CITY OF	330150
ROLLINSFORD, TOWN OF	330190
SOMERSWORTH, CITY OF	330151
STRAFFORD, TOWN OF	330196

MAY 17, 2005

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
33017CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: May 17, 2005

Revised Countywide FIS Date:

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EXHIBITS - continued

FLOOD INSURANCE STUDY
STRAFFORD COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS)

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) investigates the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs), Flood Hazard Boundary Maps (FHBMs), and Flood Boundary and Floodway Maps (FBFMs) for the geographic area of Strafford County, New Hampshire, including: the Cities of Dover, Rochester, and Somersworth; and the Towns of Barrington, Durham, Farmington, Lee, Madbury, Middleton, Milton, New Durham, Rollinsford, and Strafford (hereinafter referred to collectively as Strafford County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Strafford County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS was prepared to include the incorporated communities within Strafford County in a countywide FIS. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Dover, City of:	the hydrologic and hydraulic analyses for the FIS report dated October 1979 were prepared by the U.S. Soil Conservation Service (SCS) for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-18-75, Project

Order No. 8. That work was completed in January 1978.

Durham, Town of: the hydrologic and hydraulic analyses of Lamprey River, Oyster River, Hamel Brook, and Longmarsh Brook for the FIS report dated May 3, 1990, were prepared by the SCS for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2225, Project Order No. 01. That work was completed in September 1987. The hydrologic and hydraulic analyses of College Brook, the Lamprey River, the Oyster River, and Pettee Brook for the FIS report dated August 23, 2001, were prepared by the U.S. Geological Survey (USGS) for FEMA, under Inter-Agency Agreement No. EMW-97-IA-0155. That work was completed in April 1998.

Farmington, Town of: the hydrologic and hydraulic analyses for the FIS report dated May 17, 1988, were prepared by Costello, Lomasney, & deNapoli, Inc., for FEMA, under Contract No. EMW-84-R-1600. That work was completed in November 1985.

Milton, Town of: the hydrologic and hydraulic analyses for the FIS report dated June 3, 1988, were performed by Costello, Lomasney, & deNapoli, Inc., for FEMA, under Contract No. EMW-84-R-160. That work was completed in November 1985.

New Durham, Town of: the hydrologic and hydraulic analyses for the FIS report dated May 2, 1991, were prepared by the SCS for FEMA, under Inter-Agency Agreement No. EMW-88-E-2736, Project Order No. 2. That work was completed in September 1989.

Rochester, City of: the hydrologic and hydraulic analyses for the FIS report dated March 16, 1982, were prepared by Hamilton Engineering Associates, Inc. for FEMA, under Contract No. EMW-C-0334. That work was completed in April 1981.

Somersworth, City of: the hydrologic and hydraulic analyses for the FIS report dated February 16, 1982, were performed by Hamilton Engineering Associates, Inc. for FEMA, under Contract No. EMW-C-0334. That work was completed in April 1981.

Strafford, Town of:	the hydrologic and hydraulic analyses of Bow Lake for the FIS report dated May 2, 2002, were prepared by the USGS, New Hampshire/Vermont District, for FEMA, under Inter-Agency Agreement No. EMW-99-IA-0163, Project Order No. 1. That work was completed in June 2000.

The authority and acknowledgments for the Towns of Barrington, Lee, Madbury, Middleton, and Rollinsford are not included because there were no previously printed FIS reports for those communities.

For this countywide FIS, no new hydrologic and hydraulic analyses were prepared.

The digital base mapping information was derived from USGS Digital Orthophoto Quadrangles (DOQs) produced at a scale of 1:12,000 from photography dated 1998 or later.

The digital FIRM was produced using New Hampshire State Plane Coordinate system, FIPS Zone 2800, referenced to the North American Datum of 1983 (NAD 83), GRS80 spheroid.

1.3 Coordination

Consultation Coordination Officer's (CCO) meetings may be held for each jurisdiction in this countywide FIS. An initial CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

The dates of the initial and final CCO meetings held prior to this countywide FIS have been compiled from the previously printed FIS reports for the jurisdictions within Strafford County and are shown in Table 1, "Initial and Final CCO Meetings."

TABLE 1 - INITIAL AND FINAL CCO MEETINGS

Community Name	Initial CCO Meeting	Final CCO Meeting
Dover, City of	May 1978	October 11, 1978
Durham, Town of	July 15, 1997	September 27, 1999
Farmington, Town of	April 12, 1984	November 20, 1986
Milton, Town of	April 12, 1984	August 21, 1986
New Durham, Town of	September 2, 1987	June 11, 1990
Rochester, City of	June 1979	September 24, 1981
Somersworth, City of	June 1979	August 19, 1981
Strafford, Town of	August 25, 1999	June 25, 2001

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Strafford County, New Hampshire.

All or portions of the flooding sources listed in Table 2, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and/or on the FIRM (Exhibit 2).

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Bellamy River	Dames Brook	Little Bay
Bow Lake	Ela River	Mad River
Branch River	Hamel Brook	Miller Brook
Club Pond	Longmarsh Brook	Oyster River
Cochecho River	Kicking Horse Brook	Pettee Brook
College Brook	Lamprey River	Salmon Falls River

For this countywide FIS, the flood hazard information shown on the previous FIRMs, FHBMs, and FBFMs for the aforementioned communities has been converted to a digital format. In addition, several areas of approximate flooding were extended in order to match the approximate flooding across community corporate limits within Strafford County. The delineation involved the use of topographic maps at a scale of 1:24,000 and contour intervals of 10 and 20 feet (U.S. Department of the Interior, 1958, et cetera).

This countywide FIS also incorporates the determinations of letters issued by FEMA resulting in map changes (Letter of Map Revision [LOMR], Letter of Map Revision - based on Fill [LOMR-F], and Letter of Map Amendment [LOMA]), as shown in Table 3, "Letters of Map Change."

TABLE 3 - LETTERS OF MAP CHANGE

Community	Flooding Source(s)/Project Identifier	Effective Date	Type
Somersworth, City of	Peters Marsh Brook- Stackpole Property	April 4, 2003	LOMR
Somersworth, City of	Peters Marsh Brook – Central Parkway	March 13, 2003	LOMA

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

Numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Strafford County.

2.2 Community Description

Strafford County is located in southeastern New Hampshire. In Strafford County, there are 13 communities. The Towns of New Durham, Middleton, and Milton are located in the northern section of the county. The Towns of Farmington, Strafford, Barrington, and the City of Rochester lie in the central part of the county. The Towns of Rollinsford, Madbury, Lee, Durham, and the Cities of Somersworth and Dover comprise the southeastern portion of the county.

Strafford County is bordered to the north by the communities of Carroll County: the Towns of Wolfeboro, Brookfield, and Wakefield. To the east, the county is bordered by the communities of York County, Maine: the Towns of Acton, Lebanon, Berwick, South Berwick, and Eliot. The county is bordered to the south and southwest by communities of Rockingham County: the Towns of Newington, Newmarket, Epping, Nottingham, and Northwood. Strafford County is bordered to the east by the Town of Pittsfield, in Merrimack County, and to the northwest by the Towns of Barnstead and Alton, in Belknap County.

According to the U.S. Census Bureau, the population of Strafford County was 112,233 in 2000.

The topography of the county varies from flat coastal plains and rounded rolling hills in the southeast, to rugged, forested mountains in the northwest.

The climate of Strafford County is characterized by mean annual summer and winter temperatures of 70 degrees Fahrenheit (°F) and 24°F, respectively. The mean annual precipitation is between 40 and 45 inches, which is distributed evenly throughout the year. The average annual snowfall is approximately 55 inches.

The main flooding sources in Strafford County are the Salmon Falls River, which flows south and forms the eastern boundary of the county, and the Cochecho River which extends from the southwest to the north-central part of the county. Both rivers drain into the Piscataqua River, a tidal river which enters the Atlantic Ocean at Portsmouth Harbor.

2.3 Principal Flood Problems

Flooding in Strafford County historically has occurred in every season. Floods occurring during the mid-summer and late summer are often associated with tropical storms moving up the Atlantic coastline. The more severe flooding occurs in early spring as a result of snowmelt and heavy rains. Major floods of this type occurred in 1896, 1927, 1936, and 1954. The March 1896 flood on the

Cochecho River was in excess of a 1-percent chance event. The flood of March 1936 caused damage to structures in the floodplains of the Cochecho River and the Salmon Falls River. The March 1936 flood on the Salmon Falls River had approximately a 50-year recurrence interval. The March 1977 flood on the Bellamy River was approximately a 7-percent chance event.

On the Lamprey River, several large floods have occurred since the USGS gage No. 01073500 was installed at Packers Falls. The two most severe floods were in March 1936 and April 1987. The respective discharges associated with these events were 5,490 cubic feet per second (cfs) and 7,500 cfs. The estimated return period for floods of these magnitudes are 25 years and in excess of 100 years, respectively. In the Town of Durham, these floodwaters caused damage to roads, bridges, and dams, especially in the area of State Route 108, and in the area of Longmarsh Road. (USGS, 1934-1985).

Low-lying areas adjacent to the Ela River, Great Bay and tidal portions of the Oyster River are subject to periodic flooding. However, little significant damage occurs in these areas due to the general absence of buildings and other structures.

Ice and debris jams occurring at culverts, bridges, and other debris-catching structures, especially along the Cochecho River, have helped to compound flooding in the county.

2.4 Flood Protection Measures

In the Town of Farmington, channel modifications and dike construction were completed in 1955 and 1958 and included modifications of the Cochecho River, the Mad River, and Dames Brook. In 1955, the improvement consisted of straightening and enlarging 600 feet of the Mad River channel and 3,100 feet of the channel of the Cochecho River from the Central Street bridge to the South Main Street bridge. Construction of 3,000 feet of dike along the left bank of the Cochecho River between the two bridges was also completed (U.S. Army Corps of Engineers [USACE], 1955). In 1958, an additional 200 feet of dike was constructed on the left bank just downstream of the South Main Street bridge. FEMA specifies that all levees must have a minimum of 3 foot freeboard against 100-year flooding to be considered a safe flood protection structure. This dike does meet the FEMA 3-foot freeboard requirements.

Bow Lake in the Cochecho River watershed and Swains Lake and Bellamy Reservoir in the Bellamy River watershed give a degree of flood protection incidental to their design use. The New Hampshire Water Resources Board operates Bow Lake and Swains Lake for recreational use of the reservoirs. Each fall the pools are drawn down in anticipation of the spring runoff. This procedure not only prevents damage to shoreline property, but also allows for temporary storage of floodwater, thus lowering the frequency of downstream flooding. Bellamy Reservoir, a water supply site for the City of Portsmouth, New Hampshire, has a significant effect on the Bellamy River flood potential within the City of Dover. The flood storage available due to the 362-acre normal pool, coupled with the two-stage weir outlet structure, reduces downstream flows by nearly 50 percent.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the county at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency and peak elevation-frequency relationships for the flooding sources studied in detail affecting the county.

For each jurisdiction within Strafford County that has a previously printed FIS report, the hydrologic analyses described in those reports have been compiled and are summarized below.

For the Ela River in the Town of New Durham and the Bellamy River and Cochecho River in the City of Dover, discharge-frequency data were developed using an SCS synthetic rainfall-runoff procedure based on regionalized climatological data coupled with individual stream physical characteristics for input into the SCS TR-20 computer program (U.S. Department of Agriculture [USDA], 1983).

In the Town of Durham, discharge-frequency data for Hamel and Longmarsh Brooks (which consist of directed flow from the Lamprey River to the Oyster River) were developed using iterative hydraulic analyses at the watershed divide. The final values resulted when the downstream flow of the Lamprey River plus the diverted flow equaled the upstream inflow to the diversion location. Technical Release No. 20 was used to verify this information (USDA, 1983). No drainage area was computed for the diversion flow due to changing conditions at the watershed divide.

In the Town of Durham, peak discharge computations for the Oyster River and the Lamprey River were based on log-Pearson Type III analyses of gage records at USGS gaging stations No. 01073000 and No. 01073500, respectively (USGS, 1981). Peak discharge computations for the Oyster River at Mill Pond Dam and the Lamprey River at gage No. 01073500 were based on discharge values that were determined in the 1990 Town of Durham FIS.

In the Town of Durham, peak discharge computations for College and Pettee Brooks were based on regional regression equations developed by the USGS from peak-discharge records for floods along selected rivers in urbanized areas (USGS, 1994). The 100-year recurrence interval was then transposed to the drainage areas at different locations along the rivers in Durham using the following drainage area-discharge ratio formula:

$$Q = Q_g \, (A/A_g)^{0.75}$$

Where Q is the discharge at the different specific site locations, Q_g is the drainage at the USGS stream gage, and A and A_g are the drainage areas at the specific site and at the USGS stream gage, respectively.

In the Town of Milton and the Cities of Somersworth and Rochester, flood discharge frequencies for the Salmon Falls River were computed using log-Pearson Type III Statistical Analysis of peak discharges at USGS gage No. 01072100 located on the Salmon Falls River just downstream of the Milton Three Ponds Dam and at USGS gage No. 01072500, in operation from 1930 to 1969, located on the Salmon Falls River near South Lebanon, Maine (U.S. Water Resources Council, 1977). The discharges for the Salmon Falls River in the Town of Milton were compared to the FIS for the City of Rochester and discrepancies were resolved (FEMA, September 16, 1982).

Flood discharges for the Branch River and Miller Brook in the Town of Milton, the Cochecho River in the City of Rochester and the Town of Farmington, and the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington were determined using USGS regional equations which were based on multiple analysis of gaged data in New Hampshire (USGS, 1978).

In the Town of Farmington, flood discharges for the streams studied by approximate methods were also determined using these USGS regional equations (USGS, 1978).

A summary of the drainage area-peak discharge relationships for all of the streams studied by detailed methods is shown in Table 4, "Summary of Discharges."

TABLE 4 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
BELLAMY RIVER					
At State Route 108 in Dover	26.21	910	1,940	2,440	3,690
At Bellamy Road in Dover	25.40	910	1,940	2,440	3,690
At Dover-Madbury corporate limits	24.22	910	1,940	2,440	3,690
BRANCH RIVER					
At confluence with Salmon Falls River	57.0	2,050	3,270	3,930	5,500
Upstream of confluence of Jones Brook	54.6	1,295	2,055	2,470	3,600
COCHECHO RIVER					
At Central Avenue in Dover	173.45	6,330	11,140	13,560	19,110
At Fourth Street in Dover	173.15	6,330	11,140	13,560	19,110
At Whittier Street in Dover	171.30	6,330	11,140	13,560	19,110
At England Road in Rochester	73.6	3,160	5,100	6,120	9,580
At Spaulding Turnpike	56.1	2,300	3,720	4,460	6,650
At North Main Street	53.6	2,260	3,660	4,400	6,500
At Little Falls Bridge Road	50.4	2,150	3,530	4,240	6,250
At Farmington-Rochester corporate limits	50.0	2,150	3,530	4,240	6,250
Upstream of confluence of Mad River	23.4	1,610	2,900	3,560	5,440
Upstream of confluence of Ela River	13.7	910	1,630	2,010	3,100
COLLEGE BROOK					
Above confluence with Oyster River	0.91	100	150	170	240
Above railroad crossing	0.65	75	110	130	180
DAMES BROOK					
At confluence with Cochecho River	5.8	380	700	860	1,320
ELA RIVER					
At confluence with Cochecho River	9.5	480	840	1,020	1,560
At Old Quaker Road	8.0	*	*	570	*
At Club Pond Dam	2.7	*	*	900	*

*Data not available

TABLE 4 – SUMMARY OF DISCHARGES – continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
KICKING HORSE BROOK					
At confluence with Dames Brook	0.6	40	80	105	175
At Bunker Street	0.45	30	60	80	120
LAMPREY RIVER					
At Strafford-Rockingham county boundary	188.0	3,877	5,450	6,000	7,500
At Wiswall Road Dam	182.1	4,120	6,270	7,300	10,000
At diversion to Oyster River	*	243	820	1,300	2,500
MAD RIVER					
At confluence with Cochecho River	9.7	710	1,320	1,630	2,550
Upstream of Brook C	8.3	620	1,160	1,440	2,280
Approximately 0.93 mile upstream of Brook C	7.6	560	1,050	1,300	2,045
Upstream of Brook B	4.6	330	620	760	1,200
MILLER BROOK					
At confluence with Salmon Falls River	3.1	210	370	440	660
OYSTER RIVER					
At Mill Pond Dam	19.5	765	1,060	1,500[1]	2,700[1]
Above confluence of Hamel Brook	16.7	690	990	1,120	1,430
At USGS gage (01073000)	12.1	545	777	879	1,125
PETTEE BROOK					
Above confluence with Beards Brook	0.99	90	140	160	220
Above Edgewood Road	0.80	60	90	105	145
Above UNH Parking Lot "A"	0.66	50	80	90	125
SALMON FALLS RIVER					
At Buffumsville Road	234.7	4,600	7,460	9,000	13,800
At Walnut Grove Road	148.6	3,360	5,450	6,570	10,080
At Spaulding Avenue	130.5	3,050	4,940	5,960	9,150
At Milton-Rochester corporate limits	117.3	3,030	4,700	5,500	7,960

[1]Discharge due to diversion
*Data not available

TABLE 4 – SUMMARY OF DISCHARGES – continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SALMON FALLS RIVER (continued)					
At USGS gage No. 01072100 in Milton downstream of Milton Three Ponds Dam	108.0	2,930	4,500	5,290	7,490
Upstream of confluence of Branch River	41.5	1,430	2,200	2,580	3,660
Upstream of confluence of Miller Brook	28.7	1,080	1,660	1,960	2,770

For the Town of Strafford, the inflow 100-year flood discharge value for Bow Lake was determined based upon a drainage area relationship with the Isinglass River, as determined by the USACE in a dam break analysis of the Bow Lake dam (USACE, 1984). For the flood study of Bow Lake, the USACE determined that a value of 1,800 cfs was used as the 100-year discharge, as this is the most conservative value based upon other empirical equations. The outflow peak discharge for Bow Lake was based on flood hydrographs synthesized for the 100-year flood and routed through the reservoir by the USGS using a standard storage routing procedure.

For the Town of Durham, flood levels of significance in the tidal areas of the Oyster River and Little Bay are the result of storm tides on the coast at Portsmouth primarily caused by extratropical northeastern storms and hurricanes. Study data were obtained for peak tidal elevation-frequency relationships for coastal flooding on the Piscataqua River at Portsmouth. The study was based on a statistical analysis of the total tide elevations produced by historical northeasters and hurricanes. The National Ocean Survey (NOS) tide gage on Seavey Island provided a longer database. A statistical technique called regionalization was used in the study to generate synthetic, peak total elevations for years prior to the establishment of the Portsmouth tide gage and for the time periods when data was incomplete in Portsmouth (FEMA, May 1982).

The stillwater elevations for the 10-, 50-, 100-, and 500-year floods have been determined for all detailed studied ponds and tidal areas and are summarized in Table 5, "Summary of Stillwater Elevations." For a description of the methodologies used to compute elevations for Bow Lake, Little Bay, and Oyster River, please refer to Section 3.2, Hydraulic Analyses, in this text.

TABLE 5 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet NGVD[1]) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BOW LAKE				
At Bow Lake Dam (routed)	*	*	516.9	*
CLUB POND				
For its entire shoreline within the Town of New Durham	*	*	533.9	*
LITTLE BAY AND OYSTER RIVER				
Downstream of Mill Pond Dam within the Town of Durham	6.3	6.8	7.0	7.6

[1]National Geodetic Vertical Datum of 1929
*Data not computed

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2).

For all riverine flooding sources studied in detail, flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

For each jurisdiction within Strafford County that has a previously printed FIS report, the hydraulic analyses described in those reports have been compiled and are summarized below.

Cross sections for the backwater analyses of the Salmon Falls River and the Cochecho River in the City of Rochester were obtained from aerial photographs flown in May 1980 at a scale of 1.0 inch equals 800 feet (Moore Survey and Mapping, May 1980, Scale 1:9,600). Cross sections for the backwater analyses of all streams studied in detail in the Towns of Farmington and Milton were obtained from aerial photographs flown in May 1984 at a scale of 1:4,800 with a contour interval of 4 feet, and supplemented by field surveys and bridge plans (Quinn Associates, Inc., 1985).

Cross-section data for the Lamprey River in the Town of Durham was obtained through FEMA from the 1990 Town of Durham FIS step backwater model and from field measurements. Cross-section data for the Oyster River, Pettee Brook, and College Brook were obtained from field surveys. All bridges, dams, and culverts were field checked to obtain or verify elevation data and structural geometry.

Along certain portions of the Oyster River in the Town of Durham, a profile base line is shown on the maps to represent channel distances as indicated on the Flood Profiles and Floodway Data tables.

For Bow Lake in the Town of Strafford, water-surface elevations of floods of the selected recurrence intervals were computed through an analysis of the Bow Lake dam using weir and orifice equations. For Bow Lake, the 100-year water surface elevation was used along with USGS topographic maps to determine the extent of the flooding (U.S. Department of the Interior, 1958, et cetera).

For the Ela River in the Town of New Durham, and the Cochecho and Bellamy Rivers in the Town of Dover, water-surface elevations of floods of the selected recurrence intervals were computed using the SCS WSP-2 step-backwater computer program (USDA, 1976). Starting water-surface elevations for the Ela River were determined by computing critical depth at a cross section a short distance downstream of the Old Quaker Road bridge abutment. The results of the water-surface computations for Ela River are tabulated for selected cross sections in Table 6, "100-Year Flood Data."

For the Cochecho River in the City of Rochester and Town of Farmington, the Salmon Falls River, Branch River, and Miller Brook in the Town of Milton, the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington, and the Oyster River, the Lamprey River, College Brook, and Pettee Brook in the Town of Durham, water surface elevations of floods of the selected recurrence intervals were computed using USACE HEC-2 step-backwater computer program (USACE, 1991).

Starting water-surface elevations for the Cochecho River were taken from known elevations in the City of Rochester FIS (FEMA, September 1982). Starting water-surface elevations for the Salmon Falls River in the City of Rochester and the Town of Milton, were taken from known elevations in the City of Somersworth FIS and City of Rochester FIS, respectively (FEMA, August 1982; FEMA, September 1982). Starting water-surface elevations for the Salmon Falls River in the City of Somersworth, the Cochecho River in the City of Rochester, the Branch River and Miller Brook in the Town of Milton, and the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington, were calculated using the slope/area method. The starting water-surface elevation for the Oyster River was calculated using normal depth at the mouth of the Oyster River. The starting water-surface elevations for the Lamprey River was determined by computing critical depths at the MacCallen Dam in the Town of Newmarket, Rockingham County, and Mill Pond Dam, respectively. The gates were assumed to be closed. The starting water-surface elevations for College and Pettee Brooks were calculated using normal depth at the mouth. The water-surface elevations determined for the 100-year flood, floodway, and 500-year were then used, along with USGS topographic maps and a base map generated by the University of New Hampshire (UNH), to determine the extent of flooding (USGS, 1958, et cetera; UNH, 1996).

Approximately one mile north of the Town of Durham (Strafford County)-Town of Newmarket (Rockingham County) corporate limits, flood flows in the Lamprey River divide, with a portion being diverted over State Route 108 into Longmarsh Brook in the Oyster River watershed. The quality of flow diverted was subtracted from the flow within the Lamprey River in order to model backwater conditions present during flood events. Trial and error computer runs were made until the downstream flow of the Lamprey River plus the diverted flow equaled the upstream inflow to the diversion location.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas. Roughness factors for all streams studied by detailed methods are shown in Table 7, "Manning's "n" Values."

TABLE 7 - MANNING'S "n" VALUES

Stream	Channel "n"	Overbank "n"
Bellamy River	0.035-0.065	0.050-0.120
Branch River	0.030-0.040	0.040-0.120
Cochecho River	0.024-0.055	0.050-0.200
College Brook	0.030-0.050	0.020-0.060
Dames Brook	0.030-0.036	0.065-0.120
Ela River	0.035-0.070	0.070-0.120
Kicking Horse Brook	0.013-0.065	0.020-0.120
Lamprey River	0.028-0.075	0.060-0.150
Lamprey River diversion	0.025-0.070	0.060-0.120
Mad River	0.030-0.055	0.060-0.120
Miller Brook	0.032-0.050	0.050-0.090
Oyster River	0.030-0.060	0.045-0.085
Pettee Brook	0.020-0.070	0.020-0.060
Salmon Falls River	0.029-0.070	0.035-0.150

The flood levels caused by the storm tides on the coast at Portsmouth were translated upstream to the Great Bay at the Town of Durham. These levels were based on a FIS for the Town of Exeter, in which hydraulic analyses of the inland propagation of the coastal storm surge were performed for the Piscataqua River and Great Bay estuary system using a one-dimensional (1-D) storm surge model (FEMA, May 1982). The 1-D model was based on the hydrodynamic equations of motion and conservation of mass.

The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NGVD 29. Structure and ground elevations in the community must, therefore, be referenced to NGVD 29. It is important to note that adjacent communities may be referenced to NAVD 88. This may result in differences in base flood elevations across the corporate limits between the communities.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section.

For the flooding sources studied in detail, the boundaries were interpolated between the cross sections using topographic maps at scales of 1:24,000, 1:24,000, 1:24,000, 1:4,800, 1:4,800, 1:1,200, and 1:400 with contour intervals of 20, 10, 5, 5, 4, 2, and 2 feet, respectively, and a soil survey map (USGS, 1958, et cetera; Department of Public Works and Highway, 1965; Moore Survey and Mapping, May 1980, 1:4,800; Quinn Associates, Inc., 1985; James W. Sewall Company, 1967; UNH, 1996; USDA, 1973).

For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using a combination of the following: previously printed FHBMs for the Town of Farmington (U.S. Department of Housing and Urban Development, 1979), Town of Milton (U.S. Department of Housing and Urban Development, February 18, 1977), Town of New Durham (U.S. Department of Housing and Urban Development, December 10, 1976), City of Dover (U.S. Department of Housing and Urban Development, February 11, 1977), City of Rochester (U.S. Department of Housing and Urban Development, November 1977), and City of Somersworth (U.S. Department of Housing and Urban Development, November 1976); previously printed FIS/FIRM for the Town of Durham (FEMA, May 3, 1990); previously printed FIRM for the Town of Strafford (FEMA, April 2, 1986, FIRM, Town of Strafford); topographic maps at scales of 1:62,500, 1:24,000, and 1:4,800, with contour intervals of 20, 20, and 4 feet, respectively (USGS, 1957, et cetera; USGS, 1958, et cetera; Quinn Associates, Inc., 1985); and normal depth calculations.

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 8). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodways for the Cochecho River and the Salmon Falls River extend beyond the county boundary.

No floodways were computed for Pettee Brook, College Brook, portions of the Oyster River, and Kicking Horse Brook because the 100-year storm is contained entirely within the channel except at the confluence with Dames Brook, Bow Lake in the Town of Strafford, and the Ela River and Club Pond within the Town of New Durham.

No floodway was computed at the watershed divide between the Lamprey River and the Oyster River due to possible changes in State Route 108, an important hydraulic control. This area should be analyzed at the time changes are proposed to State Route 108 to ensure that additional flood hazards are not created (see Section 2.3).

In the City of Dover, no analysis was made for the Cochecho and Bellamy Rivers as to what stage induction may occur downstream due to the decrease in flood storage created by this encroachment. For example, blockage of the wide floodplain above Broad Street to the theoretical floodway limits may have deleterious effects downstream.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 8, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 8 for certain downstream cross sections of the Branch River, Miller Brook, and Dames Brook are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bellamy River								
A	26,715[1]	96	814	3.0	55.0	55.0	56.0	1.0
B	28,253[1]	69	580	4.2	75.4	75.4	76.4	1.0
C	30,765[1]	166	1,170	2.1	87.0	87.0	88.0	1.0
D	33,773[1]	309	2,069	1.2	88.4	88.4	89.4	1.0
E	36,283[1]	476	2,343	1.0	89.3	89.3	90.3	1.0
Branch River								
A	980[2]	451	2,516	1.6	421.0	415.5[3]	416.3	0.8
B	3,080[2]	1,895	7,385	0.5	421.0	415.9[3]	416.5	0.6
C	5,590[2]	435	1,070	3.7	421.0	415.2[3]	416.2	1.0
D	6,410[2]	404	1,540	2.6	421.0	417.8[3]	417.8	0.0
E	7,070[2]	200	1,260	3.1	421.0	418.1[3]	418.1	0.0
F	7,780[2]	301	1,265	3.1	421.0	418.5[3]	418.5	0.0
G	10,220[2]	336	1,651	2.4	421.0	419.4[3]	420.2	0.8
H	11,970[2]	507	2,429	1.6	421.0	420.1[3]	421.1	1.0
I	13,950[2]	837	4,686	0.8	421.0	421.0[3]	421.7	0.7
J	15,000[2]	289	1,252	3.1	421.1	421.1	421.8	0.7
K	15,250[2]	420	2,087	1.9	423.3	423.3	423.3	0.0
L	16,410[2]	551	2,831	1.4	423.6	423.6	423.8	0.2
M	17,900[2]	600	2,624	1.5	423.9	423.9	424.1	0.2
N	18,200[2]	112	382	10.3	424.9	424.9	424.9	0.0
O	19,600[2]	543	2,064	1.2	429.7	429.7	430.7	1.0
P	20,500[2]	342	675	3.7	432.6	432.6	432.6	0.0
Q	20,780[2]	221	1,038	2.4	434.5	434.5	434.5	0.0
R	21,600[2]	300	1,035	2.4	435.7	435.7	435.9	0.2
S	22,900[2]	81	246	10.0	440.8	440.8	440.8	0.0

[1]Feet above Scammel Bridge at Little Bay
[2]Feet above confluence with Salmon Falls River
[3]Elevation computed without consideration of backwater effects from Salmon Falls River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

BELLAMY RIVER – BRANCH RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cochecho River								
A	14,810[1]	262	3,704	3.7	9.3	9.3	10.3	1.0
B	17,000[1]	226	3,108	4.4	11.3	11.3	12.3	1.0
C	20,943[1]	290	4,202	3.2	47.0	47.0	48.0	1.0
D	22,358[1]	707	7,643	1.8	47.4	47.4	48.4	1.0
E	23,553[1]	128	2,623	5.2	47.5	47.5	48.5	1.0
F	25,458[1]	225	3,781	3.6	48.0	48.0	49.0	1.0
G	450[2]	740	7,329	1.7	124.2	124.2	125.1	0.9
H	11,660[2]	70	870	7.0	125.9	125.9	126.6	0.7
I	11,730[2]	256	2,087	2.9	127.0	127.0	127.9	0.9
J	19,850[2]	94	1,258	4.9	130.7	130.7	131.1	0.4
K	21,470[2]	144	996	6.1	131.6	131.6	132.0	0.4
L	24,265[2]	148	625	9.8	139.4	139.4	139.5	0.1
M	24,615[2]	76	723	8.5	143.4	143.4	143.4	0.0
N	24,666[2]	100	1,657	3.7	160.6	160.6	160.6	0.0
O	26,116[2]	117	1,368	4.5	162.4	162.4	162.7	0.3
P	26,228[2]	105	1,322	4.6	182.0	182.0	182.0	0.0
Q	26,388[2]	105	1,214	5.0	182.1	182.1	182.1	0.0
R	26,488[2]	105	1,431	4.3	182.7	182.7	182.7	0.0
S	32,093[2]	104	1,492	2.9	183.8	183.8	184.1	0.3
T	33,204[2]	110	1,370	3.2	184.0	184.0	184.3	0.3
U	34,874[2]	49	665	6.6	184.1	184.1	184.4	0.3
V	34,979[2]	130	1,424	3.1	184.8	184.8	185.1	0.3
W	41,989[2]	250	1,915	2.3	186.5	186.5	186.7	0.2
X	45,024[2]	75	349	12.6	192.3	192.3	192.3	0.0
Y	45,424[2]	85	367	12.0	199.1	199.1	199.1	0.0
Z	45,479[2]	102	1,175	3.7	218.4	218.4	218.4	0.0

[1]Feet above confluence with Piscataqua River
[2]Feet above Dover-Rochester corporate limits
[3]Width/width within corporate limits

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECHO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cochecho River (continued)								
AA	45,637	150	1,573	2.8	218.7	218.7	218.7	0.0
AB	45,941	222	1,080	4.1	218.8	218.8	218.8	0.0
AC	45,987	241	2,122	2.1	224.4	224.4	224.8	0.4
AD	46,353	176	1,645	2.7	224.5	224.5	224.9	0.4
AE	49,093	169	1,277	3.4	225.1	225.1	225.4	0.3
AF	49,148	200	2,064	2.1	225.3	225.3	225.6	0.3
AG	56,348	73	831	5.3	226.0	226.0	226.7	0.7
AH	57,995	472	1,918	2.3	227.1	227.1	227.6	0.5
AI	60,570	98	979	4.5	228.4	228.4	228.7	0.3
AJ	60,642	208	1,564	2.8	228.7	228.7	228.8	0.1
AK	66,672	54	571	7.7	231.7	231.7	232.1	0.4
AL	66,732	253	1,732	2.5	233.1	233.1	233.4	0.3
AM	75,482	410	2,545	1.7	235.9	235.9	236.1	0.2
AN	79,240	110	726	5.8	237.6	237.6	237.9	0.3
AO	79,740	150	1,261	3.4	238.5	238.5	239.2	0.7
AP	80,003	85	857	4.9	240.1	240.1	240.2	0.1
AQ	80,804	440	3,448	1.2	240.3	240.3	241.0	0.7
AR	81,495	540	3,275	1.3	240.4	240.4	241.2	0.8
AS	82,736	650	4,123	1.0	240.5	240.5	241.4	0.9
AT	83,618	630	3,640	1.2	240.7	240.7	241.7	1.0
AU	84,996	600	2,661	1.6	241.3	241.3	242.3	1.0
AV	85,610	380	2,699	1.6	241.3	241.3	242.3	1.0
AW	85,950	350	2,466	1.7	244.6	244.6	244.9	0.3
AX	86,893	445	3,362	1.3	244.8	244.8	245.1	0.3
AY	87,633	138	751	5.6	244.9	244.9	245.9	1.0
AZ	88,332	130	954	4.4	246.6	246.6	246.6	0.0

[1]Feet above Dover-Rochester corporate limits

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECHO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cochecho River (continued)								
BA	89,098	130	983	4.3	247.0	247.0	247.4	0.4
BB	90,180	126	696	6.1	247.7	247.7	248.3	0.6
BC	90,675	105	651	6.5	249.3	249.3	249.6	0.3
BD	90,925	240	1,874	2.3	254.8	254.8	255.1	0.3
BE	92,290	310	3,303	1.3	255.2	255.2	255.6	0.4
BF	93,140	250	2,257	1.9	255.3	255.3	255.7	0.4
BG	93,955	250	1,920	2.2	255.4	255.4	255.9	0.5
BH	94,365	340	3,464	1.2	255.5	255.5	256.0	0.5
BI	94,685	310	2,460	1.7	255.6	255.6	256.4	0.8
BJ	95,420	490	6,670	0.6	255.7	255.7	256.6	0.9
BK	96,590	590	5,946	0.7	255.8	255.8	256.7	0.9
BL	98,055	700	4,917	0.9	256.0	256.0	256.9	0.9
BM	99,150	970	4,192	1.0	256.2	256.2	257.1	0.9
BN	99,935	895	3,002	1.4	256.5	256.5	257.5	1.0
BO	100,820	403	1,152	3.7	257.7	257.7	258.0	0.3
BP	101,925	200	813	5.2	260.7	260.7	261.1	0.4
BQ	102,820	77	417	10.2	263.5	263.5	263.8	0.3
BR	103,550	65	442	9.6	268.2	268.2	268.2	0.0
BS	103,770	73	456	9.3	269.2	269.2	269.2	0.0
BT	104,780	77	543	7.8	273.2	273.2	273.4	0.2
BU	105,942	95	591	7.2	276.0	276.0	276.8	0.8
BV	106,443	81	480	7.4	278.2	278.2	278.3	0.1
BW	106,720	120	335	10.6	280.6	280.6	280.6	0.0
BX	106,950	53	382	9.3	282.9	282.9	283.0	0.1
BY	108,060	235	460	7.7	288.0	288.0	288.0	0.0
BZ	109,090	634	1,316	2.7	295.9	295.9	296.2	0.3
CA	109,805	350	593	6.0	300.7	300.7	300.9	0.2

[1]Feet above Dover-Rochester corporate limits

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECHO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dames Brook								
A	100	35	137	6.3	260.6	260.5[2]	261.5	1.0
B	445	30	190	4.5	262.0	262.0	262.6	0.6
C	590	36	246	3.5	265.4	265.4	265.4	0.0
Ela River								
A	4,090	140	1,140	0.9	309.5	309.5	310.4	0.9
B	4,730	55	281	3.6	309.5	309.5	310.5	1.0
C	5,045	54	354	2.9	312.6	312.6	313.2	0.6
D	6,050	39	108	9.5	323.3	323.3	323.3	0.0
E	6,815	53	207	4.9	328.9	328.9	329.2	0.3
F	7,745	39	107	9.5	340.8	340.8	340.8	0.0
G	8,980	83	192	5.3	350.3	350.3	350.5	0.2
H	9,745	70	129	7.9	360.8	360.8	360.8	0.0
I	9,920	50	285	3.6	365.0	365.0	365.4	0.4
J	10,500	48	115	8.9	368.3	368.3	368.3	0.0
K	11,955	61	398	2.6	380.5	380.5	380.7	0.2

[1]Feet above confluence with Cochecho River
[2]Elevation computed without consideration of backwater effects from Cochecho River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

DAMES BROOK – ELA RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hamel Brook								
A	5,450[1]	30	185	7.0	25.3	25.3	26.3	1.0
B	5,765[1]	41	257	5.0	28.6	28.6	29.6	1.0
C	5,860[1]	122	1,020	1.3	30.6	30.6	31.6	1.0
Longmarsh Brook								
D	6,345[1]	127	1,175	1.1	31.0	31.0	32.0	1.0
E	7,805[1]	253	1,920	0.7	32.5	32.5	33.5	1.0
Lamprey River								
A	3,725[2]	239	3,361	1.8	32.8	32.8	33.8	1.0
B	6,385[2]	100	1,627	4.5	33.0	33.0	34.0	1.0
C	8,265[2]	130	1,991	3.7	33.4	33.4	34.4	1.0
D	8,985[2]	61	776	9.4	32.9	32.9	33.9	1.0
E	9,885[2]	77	829	8.8	38.3	38.3	39.3	1.0
F	10,460[2]	142	1,576	4.6	39.5	39.5	40.5	1.0
G	10,925[2]	101	1,561	4.7	53.4	53.4	54.4	1.0
H	11,025[2]	115	2,081	3.5	53.5	53.5	54.5	1.0
I	12,505[2]	127	2,269	3.2	53.7	53.7	54.7	1.0
J	14,075[2]	119	1,900	3.8	54.1	54.1	55.1	1.0
K	14,495[2]	195	2,061	3.5	54.4	54.4	55.4	1.0
L	14,586[2]	200	3,657	2.0	62.0	62.0	63.0	1.0
M	14,815[2]	202	2,920	2.5	62.7	62.7	63.6	0.9
N	17,281[2]	198	2,124	3.4	63.4	63.4	64.3	0.9

[1]Feet above Mill Pond Dam
[2]Feet above Rockingham-Strafford County boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

HAMEL BROOK – LONGMARSH BROOK - LAMPREY RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mad River								
A	630	49	228	7.1	279.2	279.2	279.2	0.0
B	1,420	25	126	12.9	286.5	286.5	286.5	0.0
C	1,575	50	443	3.7	289.1	289.1	289.6	0.5
D	2,125	56	166	9.8	290.0	290.0	290.0	0.0
E	3,115	67	235	6.9	303.4	303.4	303.4	0.0
F	4,015	40	148	11.0	317.1	317.1	317.1	0.0
G	4,145	35	162	10.1	318.4	318.4	318.9	0.5
H	4,410	26	188	8.7	322.7	322.7	323.0	0.3
I	4,700	46	211	7.7	328.4	328.4	328.4	0.0
J	5,045	48	157	10.4	336.9	336.9	336.9	0.0
K	6,190	29	145	9.9	358.8	358.8	359.2	0.4
L	7,060	43	204	7.1	369.7	369.7	370.4	0.7
M	7,870	38	134	10.7	387.4	387.4	387.4	0.0
N	8,730	39	178	8.1	410.5	410.5	411.1	0.6
O	9,440	37	133	10.8	433.8	433.8	433.8	0.0
P	9,558	31	125	11.5	436.1	436.1	436.1	0.0
Q	10,400	49	166	8.6	455.8	455.8	456.2	0.4
R	11,110	53	159	8.2	472.4	472.4	472.4	0.0
S	12,105	60	174	7.5	493.0	493.0	493.3	0.3
T	13,255	57	153	8.5	518.3	518.3	518.3	0.0
U	13,780	24	107	12.1	544.7	544.7	544.7	0.0
V	14,310	47	196	6.6	553.8	553.8	554.1	0.3
W	15,050	30	150	8.7	559.7	559.7	560.1	0.4
X	16,045	48	183	4.1	565.6	565.6	565.8	0.2
Y	16,580	75	109	6.9	569.2	569.2	569.2	0.0

[1]Feet above confluence with Cochecho River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

MAD RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Miller Brook								
A	780[1]	65	263	1.7	426.1	424.7[3]	425.7	1.0
B	1,300[1]	60	270	1.6	426.1	425.0[3]	426.0	1.0
C	1,600[1]	65	261	1.7	427.0	427.0	427.1	0.1
D	1,950[1]	65	250	1.8	427.0	427.0	427.2	0.2
E	2,875[1]	41	129	3.4	427.3	427.3	428.2	0.9
F	3,700[1]	25	78	5.6	431.5	431.5	431.8	0.3
G	4,000[1]	35	87	5.1	433.6	433.6	434.1	0.5
H	4,170[1]	40	62	7.1	436.3	436.3	436.3	0.0
I	4,300[1]	100	731	0.6	444.6	444.6	445.5	0.9
Oyster River								
A	31[2]	102	1,315	1.1	14.4	14.4	15.4	1.0
B	51[2]	102	1,315	1.1	14.4	14.4	15.4	1.0
C	109[2]	116	1,085	1.4	14.4	14.4	15.4	1.0
D	938[2]	64	595	2.5	14.4	14.4	15.4	1.0
E-U*								

[1]Feet above confluence with Salmon Falls River
[2]Feet above Mill Pond Dam
[3]Elevation computed without consideration of backwater effects from Salmon Falls River
*No floodway data computed

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

MILLER BROOK – OYSTER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River								
A	800	130/50	1,264	7.1	73.1	73.1	73.3	0.2
B	3,030	98/30	814	11.1	75.6	75.6	76.0	0.4
C	3,108	120/25	1,026	8.8	76.8	76.8	76.8	0.0
D	4,903	154/90	1,376	6.5	85.2	85.2	86.2	1.0
E	4,991	260/120	5,378	1.7	109.3	109.3	109.3	0.0
F	8,211	160/95	2,472	3.6	109.4	109.4	109.4	0.0
G	10,696	113/30	1,782	5.0	116.6	116.6	116.8	0.2
H	10,748	115/45	1,310	6.9	123.9	123.9	123.9	0.0
I	12,978	296/130	887	10.1	167.0	167.0	167.0	0.0
J	13,029	275/150	3,015	3.0	174.8	174.8	174.8	0.0
K	13,359	109/50	1,312	6.9	174.8	174.8	174.8	0.0
L	13,469	130/65	1,756	5.1	175.7	175.7	175.7	0.0
M	15,049	160/80	2,113	4.5	176.6	176.6	176.7	0.1
N	17,319	125/75	2,080	4.3	177.2	177.2	177.4	0.2
O	20,039	127/70	2,206	4.1	177.7	177.7	178.1	0.4
P	21,839	111/50	1,712	5.3	177.9	177.9	178.3	0.4
Q	21,879	558/90	3,624	2.5	178.2	178.2	178.6	0.4
R	23,199	115/55	2,052	4.4	178.5	178.5	178.9	0.4
S	26,379	175/95	2,461	3.7	179.2	179.2	179.8	0.6
T	29,024	166/86	1,927	4.7	180.4	180.4	181.2	0.8
U	29,077	183/90	1,829	4.9	182.8	182.8	182.9	0.1
V	31,915	915/805	7,086	1.3	183.6	183.6	183.8	0.2
W	44,085	146/100	1,499	4.4	184.5	184.5	185.0	0.5
X	45,160	77/38	1,131	5.8	185.2	185.2	185.7	0.5
Y	45,200	352/55	3,212	2.0	185.8	185.8	186.2	0.4
Z	62,910	354/90	3,005	2.2	189.8	189.8	190.8	1.0

[1]Feet above Somersworth-Rollinsford corporate limits
[2]Width/width within county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
AA	70,945	100/60[2]	528	12.5	194.6	194.6	194.6	0.0
AB	71,400	199/95[2]	1,713	3.8	197.9	197.9	198.6	0.7
AC	71,470	164/100[2]	1,667	3.9	206.2	206.2	206.2	0.0
AD	72,770	79/40[2]	643	10.2	206.2	206.2	206.2	0.0
AE	72,870	219/110[2]	1,335	4.9	207.5	207.5	207.6	0.1
AF	73,250	70/35[2]	452	14.5	209.9	209.9	209.9	0.0
AG	73,350	70/30[2]	704	9.3	213.2	213.2	213.2	0.0
AH	74,550	100/50[2]	1,335	4.9	215.0	215.0	215.5	0.5
AI	80,700	165/125[2]	1,306	4.6	216.3	216.3	217.3	1.0
AJ	83,935	81/41[2]	868	6.9	219.3	219.3	220.1	0.8
AK	84,030	536/45[2]	1,805	3.3	221.2	221.2	221.4	0.2
AL	93,150	125/100[2]	1,267	4.7	222.9	222.9	223.4	0.5
AM	97,210	248/165[2]	2,338	2.5	226.2	226.2	227.1	0.9
AN	100,425	199/160[2]	1,079	5.5	228.2	228.2	229.0	0.8
AO	100,510	235/200[2]	1,646	3.6	229.4	229.4	230.4	1.0
AP	102,700	1,586/1,526[2]	4,687	1.3	232.6	232.6	233.2	0.6
AQ	103,050	748/500[2]	3,344	1.8	247.3	247.3	247.3	0.0
AR	104,065	532[3]	8,177	0.7	247.3	247.3	247.3	0.0
AS	107,135	988[3]	8,201	0.7	247.3	247.3	247.3	0.0
AT	108,565	93[3]	664	8.3	248.2	248.2	248.2	0.0
AU	109,860	179[3]	607	9.1	257.8	257.8	257.8	0.0
AV	111,670	131[3]	902	6.1	265.5	265.5	265.7	0.2
AW	112,840	81[3]	421	13.1	310.1	310.1	310.1	0.0
AX	114,385	324[3]	1,966	2.8	355.1	355.1	356.1	1.0
AY	116,320	202[3]	1,506	3.7	398.8	398.8	399.4	0.6
AZ	116,520	115[3]	813	6.8	399.4	399.4	399.9	0.5

[1]Feet above Somersworth-Rollinsford corporate limits
[2]Width/width within county boundary
[3]This width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		RIVER CHANNEL				1% ANNUAL CHANCE WATER-SURFACE ELEVATIONS (FEET NGVD)
CROSS SECTION	DISTANCE[1] (FEET)	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	STREAM BED ELEVATION (FEET NGVD)	
Ela River						
L	18,160	5,685	109	315	2.5	513.4
M	18,320	5,813	44	75	8.9	515.0
N	18,420	5,905	221	591	1.8	516.3
O	25,750	13,241	479	2,577	0.3	519.9
P	29,325	16,820	220	631	1.1	520.6
Q	36,360	23,870	262	1,012	0.9	526.4
R	36,600	24,095	184	496	2.5	526.9
S	36,720	24,225	143	665	1.7	531.7

[1]Feet above confluence with Cochecho River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

100-YEAR FLOOD DATA

ELA RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
BA	117,700	234	3,371	1.6	420.2	420.2	420.8	0.6
BB	118,440	197	2,520	2.1	420.3	420.3	420.9	0.6
BC	120,440	2,088	46,821	0.1	420.3	420.3	420.9	0.6
BD	122,970	610	9,603	0.6	420.3	420.3	420.9	0.6
BE	125,070	333	4,158	1.3	420.3	420.3	420.9	0.6
BF	126,935	705	9,177	0.6	420.4	420.4	421.0	0.6
BG	127,900	550	7,198	0.7	420.4	420.4	421.0	0.6
BH	128,420	273	4,312	1.2	420.8	420.8	421.5	0.7
BI	131,670	1,390	24,230	0.2	420.9	420.9	421.6	0.7
BJ	133,470	1,971	30,716	0.2	420.9	420.9	421.6	0.7
BK	135,770	1,584	21,746	0.2	420.9	420.9	421.6	0.7
BL	137,995	1,645	21,542	0.2	420.9	420.9	421.6	0.7
BM	139,745	2,150	26,769	0.1	420.9	420.9	421.6	0.7
BN	142,175	450	4,179	0.6	420.9	420.9	421.6	0.7
BO	143,645	692	7,016	0.4	420.9	420.9	421.6	0.7
BP	145,185	160	1,714	1.5	420.9	420.9	421.6	0.7
BQ	147,320	299	2,454	1.1	421.0	421.0	421.8	0.8
BR	148,620	200	1,593	1.6	421.0	421.0	421.8	0.8
BS	149,850	400	2,854	0.9	421.1	421.1	422.0	0.9
BT	151,370	551	3,783	0.7	421.2	421.2	422.2	1.0
BU	153,170	400	2,085	1.2	421.3	421.3	422.3	1.0
BV	155,120	571	2,695	1.0	421.6	421.6	422.6	1.0
BW	157,320	400	1,963	1.3	422.6	422.6	423.5	0.9
BX	158,720	450	2,574	1.0	423.0	423.0	424.0	1.0
BY	160,120	80	503	5.1	423.5	423.5	424.3	0.8
BZ	161,990	273	1,417	1.8	425.4	425.4	426.4	1.0

[1]Feet above Somersworth-Rollinsford corporate limits
[2]This width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
CA	163,220	65	198	9.9	427.7	427.7	427.7	0.0
CB	164,640	127	1,422	1.4	451.3	451.3	451.3	0.0
CC	164,850	122	865	2.3	452.1	452.1	452.1	0.0
CD	166,275	82	211	9.3	464.8	464.8	464.8	0.0
CE	167,095	61	322	6.1	470.7	470.7	471.4	0.7
CF	168,720	218	494	4.0	490.9	490.9	491.4	0.5
CG	170,520	588	3,940	0.5	507.5	507.5	507.5	0.0
CH	172,320	110	816	2.4	507.5	507.5	507.5	0.0
CI	173,295	114	796	2.5	507.6	507.6	507.8	0.2
CJ	174,495	500	1,989	1.0	507.7	507.7	508.1	0.4
CK	175,945	125	847	2.3	507.9	507.9	508.3	0.4
CL	177,620	896	3,223	0.6	508.0	508.0	508.4	0.4
CM	179,070	105	1,013	1.9	508.1	508.1	508.5	0.4
CN	180,670	550	1,285	1.5	508.2	508.2	508.9	0.7
CO	181,740	443	1,315	1.5	508.9	508.9	509.9	1.0
CP	183,795	71	216	9.1	511.6	511.6	511.6	0.0

[1]Feet above Somersworth-Rollinsford corporate limits
[2]This width extends beyond county boundary

TABLE 8

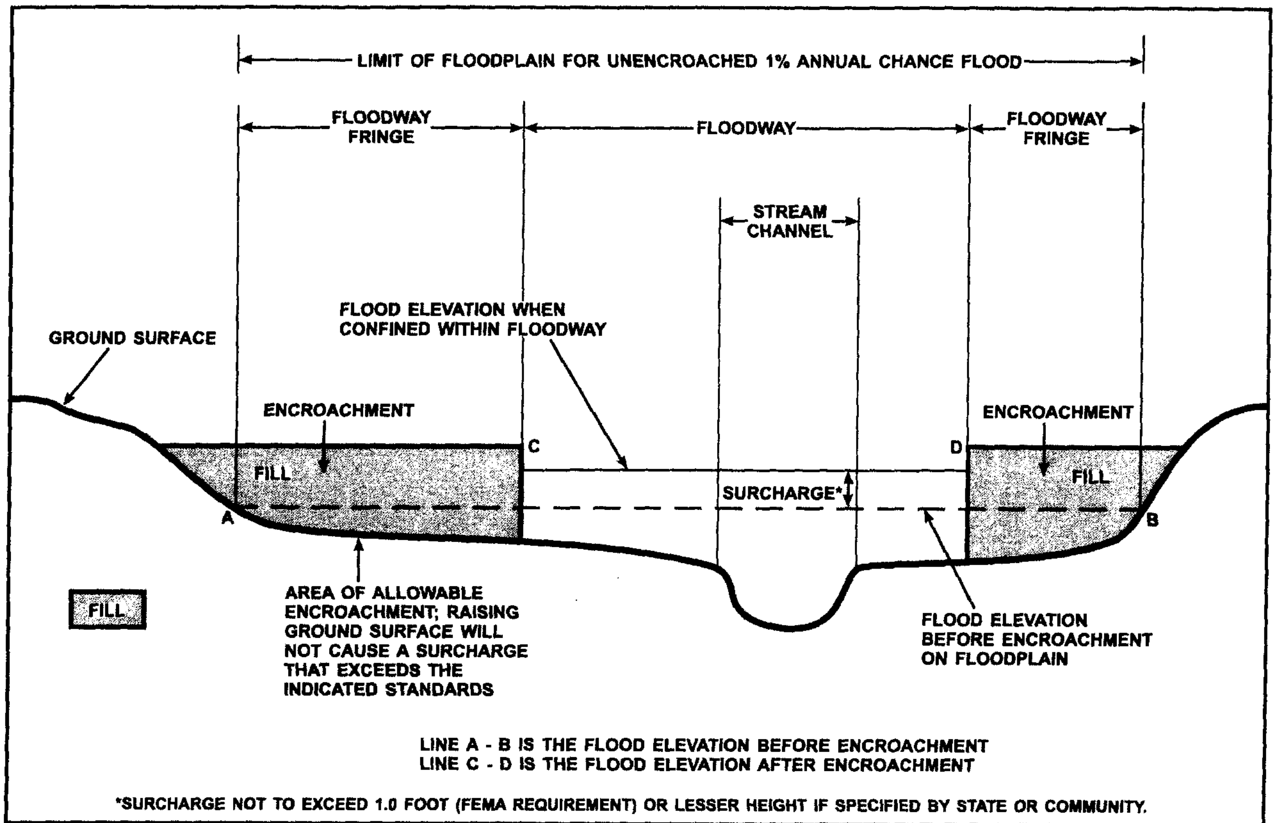
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.



FLOODWAY SCHEMATIC Figure 1

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Strafford County. Previously, separate FHBMs and/or FIRMs were prepared for each identified flood-prone incorporated community within the county. This countywide FIRM also includes flood hazard information that was presented separately on FBFMs, where applicable. Historical data relating to the maps prepared for each floodprone community, up to and including this countywide FIS, are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

FISs have been prepared for Rockingham County, New Hampshire: the Towns of Epping (FEMA, April 15, 1982), Newington (U.S. Department of Housing and Urban Development, February 21, 1975), Newmarket (FEMA, May 2, 1991, FIS, Town of Newmarket), Northwood (FEMA, January 2, 1987), and Nottingham (FEMA, April 2, 1986, FIS, Town of Nottingham). A FIS is currently being prepared for Rockingham County, New Hampshire (All Jurisdictions).

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Barrington, Town of	February 21, 1975		September 1, 1989	May 17, 2004
Dover, City of	July 26, 1974	February 11, 1977	April 15, 1980	May 17, 2004
Durham, Town of	September 13, 1974	May 14, 1976	May 3, 1990	August 23, 2001 May 17, 2004
Farmington, Town of	February 21, 1975	April 16, 1976 December 7, 1979	May 17, 1988	May 17, 2004
Lee, Town of	June 21, 1974	September 3, 1976	April 2, 1986	May 17, 2004
Madbury, Town of	January 17, 1975		May 17, 2004	May 17, 2004
Middleton, Town of	January 31, 1975	January 10, 1978	August 1, 1988	May 17, 2004
Milton, Town of	February 7, 1975	February 18, 1977	June 3, 1988	May 17, 2004
New Durham, Town of	February 7, 1975	December 10, 1976	May 2, 1991	May 17, 2004
Rochester, City of	November 8, 1977		September 16, 1982	May 17, 2004
Rollinsford, Town of	January 3, 1975	February 28, 1978	April 2, 1986	May 17, 2004
Somersworth, City of	February 21, 1975	November 19, 1976	August 16, 1982	May 17, 2004
Strafford, Town of	February 28, 1975	December 31, 1976	April 2, 1986	May 2, 2002 May 17, 2004

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

FISs have been prepared for Belknap County, New Hampshire: the Towns of Barnstead (FEMA, April 2, 1986, FIS, Town of Barnstead) and Alton (FEMA, May 17, 1988, FIS, Town of Alton).

A FIS has been prepared for the Town of Pittsfield, Merrimack County, New Hampshire (U.S. Department of Housing and Urban Development, July 3, 1978).

FISs have been prepared for Carroll County, New Hampshire: the Towns of Brookfield (U.S. Department of Housing and Urban Development, May 17, 1977), Wakefield (FEMA, June 17, 1991), and Wolfeboro (FEMA, May 17, 1989).

FISs have been prepared for York County, Maine: the Towns of Acton (FEMA, June 5, 1985, FIS, Town of Acton), Lebanon (FEMA, July 3, 2002), Berwick (FEMA, August 5, 1991), South Berwick (FEMA, June 5, 1985, FIS, Town of South Berwick), and Eliot (FEMA, June 5, 1989).

Two USACE reports concerning the Cochecho River Flood Control contain hydrologic and hydraulic information have been prepared (USACE, February 1955; USACE, February 1958).

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Strafford County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS reports, FHBMs, FIRMs, and FBFMs for all of the incorporated jurisdictions within Strafford County.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, Federal Regional Center, J.W. McCormack Post Office and Courthouse Building, Room 462, Boston, Massachusetts 02109.

9.0 BIBLIOGRAPHY AND REFERENCES

Department of Public Works and Highway. (May 1965). State of New Hampshire, Photogrammetric Maps, Stratham to Durham, New Hampshire. Scale 1:24,000, Contour Interval 5 feet.

Federal Emergency Management Agency. (July 3, 2002). Flood Insurance Study, Town of Lebanon, York County, Maine. Washington D.C.

Federal Emergency Management Agency. (May 2, 2002). Flood Insurance Study, Town of Strafford, Strafford County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (August 23, 2001). Flood Insurance Study, Town of Durham, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (August 5, 1991). Flood Insurance Study, Town of Berwick, York County, Maine. Washington, D.C.

Federal Emergency Management Agency. (June 17, 1991). Flood Insurance Study, Town of Wakefield, Carroll County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (May 2, 1991). Flood Insurance Study, Town of New Durham, Strafford County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (May 2, 1991). Flood Insurance Study, Town of Newmarket, Rockingham County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (May 3, 1990). Flood Insurance Study, Town of Durham, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (September 1, 1989). Flood Insurance Rate Map, Town of Barrington, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (June 5, 1989). Flood Insurance Study, Town of Eliot, York County, Maine. Washington D.C.

Federal Emergency Management Agency. (May 17, 1989). Flood Insurance Study, Town of Wolfeboro, Carroll County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (August 1, 1988). Flood Insurance Rate Map, Town of Middleton, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (June 3, 1988). Flood Insurance Study, Town of Milton, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (May 17, 1988). Flood Insurance Study, Town of Farmington, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (May 17, 1988). Flood Insurance Study, Town of Alton, Belknap County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency, (January 2, 1987). Flood Insurance Rate Map, Town of Northwood, Rockingham County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (April 2, 1986). Flood Insurance Rate Map, Town of Barnstead, Belknap County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (April 2, 1986). Flood Insurance Rate Map, Town of Lee, Strafford County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (April 2, 1986). Flood Insurance Rate Map, Town of Rollinsford, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (April 2, 1986). Flood Insurance Rate Map, Town of Strafford, Strafford County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (April 2, 1986). Flood Insurance Study, Town of Nottingham, Rockingham County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: June 5, 1985; Flood Insurance Study report: December 5, 1984). Flood Insurance Study, Town of Acton, York County, Maine. Washington D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: June 5, 1985; Flood Insurance Study report: December 5, 1984). Flood Insurance Study, Town of South Berwick, York County, Maine. Washington D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: August 16, 1982; Flood Insurance Study report: February 16, 1982). Flood Insurance Study, City of Somersworth, Strafford County, New Hampshire. Washington D.C.

Federal Emergency Management Agency, Flood Insurance Administration (Flood Insurance Rate Map: September 16, 1982; Flood Insurance Study report: March 16, 1982). Flood Insurance Study, City of Rochester, Strafford County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: April 15, 1982; Flood Insurance Study report: October 15, 1981). Flood Insurance Study, Town of Epping, Rockingham County, New Hampshire. Washington D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: May 17, 1982; Flood Insurance Study report: November 17, 1981). Flood Insurance Study, City of Portsmouth, Rockingham County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map: May 17, 1982; Flood Insurance Study report: November 17, 1981). Flood Insurance Study, Town of Exeter, Rockingham County, New Hampshire. Washington, D.C.

Federal Emergency Management Agency. (Flood Insurance Rate Map : April 15, 1980; Flood Insurance Study report: October 15, 1979). Flood Insurance Study, City of Dover, Strafford County, New Hampshire. Washington D.C.

James W. Sewall Company. (1967). Topographic Maps. Scale 1:1,200, Contour Interval 2 Feet. Dover, New Hampshire.

Moore Survey and Mapping, of Shrewsbury, Massachusetts. (May 1980). Topographic Maps compiled from aerial photographs. Scale 1:4,800, Contour Interval 5 feet. City of Somersworth and City of Rochester, New Hampshire.

Moore Survey and Mapping, of Shrewsbury, Massachusetts. (May 1980). Topographic Maps compiled from aerial photographs. Scale 1:9,600, Contour Interval 5 feet. City of Rochester, New Hampshire.

Quinn Associates, Inc., of Horsham, Pennsylvania. (1985). Topographic Maps compiled from aerial photographs. Scale 1:4,800, Contour Interval 4 feet. Towns of Farmington and Milton, New Hampshire.

U.S. Army Corps of Engineers. (September 1984). Isinglass River, Cochecho River Watershed, New Hampshire: Bow Lake Dam-Break Flood Analysis.

U.S. Army Corps of Engineers. (February 1955). Pertinent Data, Local Protection Project, Cochecho River Flood Control, Farmington, New Hampshire.

U.S. Army Corps of Engineers, Hydrologic Engineering Center. (September 1991). HEC-2 Water-Surface Profiles, Generalized Computer Program. Davis, California.

U.S. Army Corps of Engineers. (February 1958). Local Protection Project, Cochecho River, Piscataqueg River Basin. Farmington, New Hampshire. General Design, Memorandum.

U.S. Department of Agriculture, Soil Conservation Service. (May 1983). Computer Program, Project Formulation, Hydrology. Technical Release No. 20. Washington, D.C.

U.S. Department of Agriculture, Soil Conservation Service. (March 1973). Soil Survey of Strafford County, New Hampshire.

U.S. Department of Agriculture, Soil Conservation Service. (May 1976). WSP-2 Computer Program. Technical Release No. 61. Washington, DC.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (December 7, 1979). Flood Hazard Boundary Map, Town of Farmington, Strafford County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (Flood Insurance Rate Map: July 3, 1978; Flood Insurance Study report: January 1978). Flood Insurance Study, Town of Pittsfield, Merrimack County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (December 10, 1976). Flood Hazard Boundary Map, Town of New Durham, Strafford County, New Hampshire. Washington, D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (February 21, 1975). Flood Hazard Boundary Map, Town of Newington, Rockingham County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (January 17, 1975). Flood Hazard Boundary Map, Town of Madbury, Strafford County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (November 1977). Flood Hazard Boundary Map, City of Rochester, Strafford County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (May 17, 1977). Flood Insurance Rate Map, Town of Brookfield, Carroll County, New Hampshire. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (February 18, 1977). Flood Hazard Boundary Map, Town of Milton, Strafford County, New Hampshire. Washington, D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (February 11, 1977). Flood Hazard Boundary Map, City of Dover, Strafford County, New Hampshire. 1:12,000. Washington D.C.

U.S. Department of Housing and Urban Development, Federal Insurance Administration. (November 1976). Flood Hazard Boundary Map, City of Somersworth, Strafford County, New Hampshire. Washington, D.C.

U.S. Department of the Interior, Geological Survey. (Sanbornville, NH, 2000; Alton, NH, 1987; Baxter Lake, NH, 1987; Farmington, NH, 1987; Parker Mountain, NH, 1987; Wolfeboro, NH, 1987; Barrington, New Hampshire (NH), 1981; Epping, NH, 1981; Northwood, NH, 1981; Portsmouth, NH-ME, 1981; Great East Lake, NH-ME, 1983; Milton, NH-ME, 1983;Rochester, NH, 1983; Dover East, NH, 1973; Dover West, NH, 1973; Newmarket, New Hampshire (NH), 1973; Somersworth, NH-Maine (ME), 1958). 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 10 and 20 Feet.

U.S. Department of the Interior, Geological Survey, Office of Water Data Collection, Interagency Advisory Committee on Water Data. (September 1981). "Guidelines for Determining Flood Flow Frequency". Bulletin 17B. Reston, Virginia.

U.S. Department of the Interior, Geological Survey. (1994). Nationwide Summary of U.S. Geological Survey Regional Regression Equations for Estimating Magnitude and Frequency of Floods for Ungaged Sites, 1993. Water Resources Investigation Report 94-4002. Washington, DC. M.E. Jennings, H.C. Riggs, and W.O. Thomas, Jr. (authors).

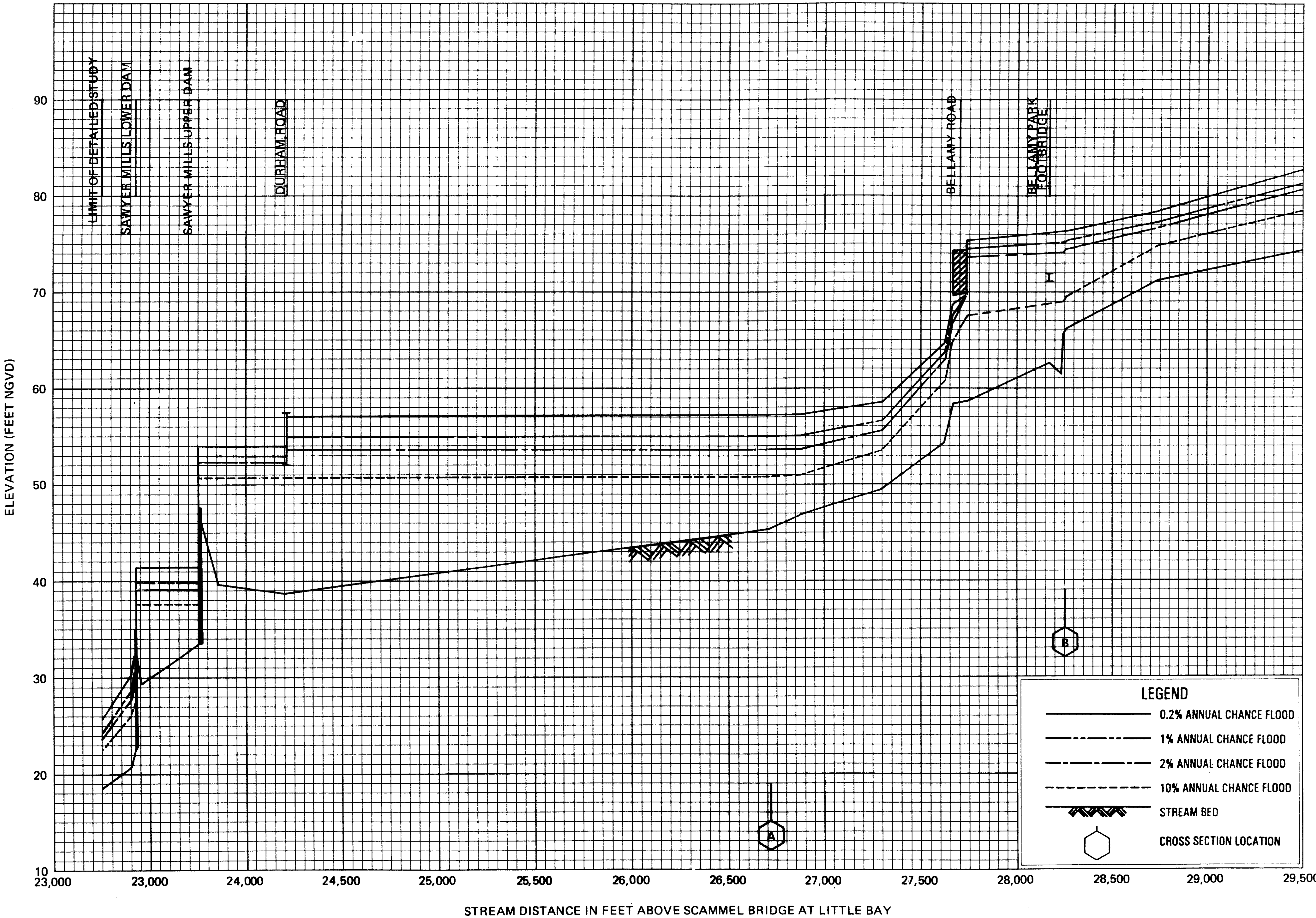
U.S. Department of the Interior, Geological Survey. (March 1978). Progress Report on Hydrologic Investigation of Small Drainage Areas in New Hampshire – Preliminary Relations for Estimating Peak Discharges on Rural, Unregulated Streams. Washington, D.C. Dennis R. LeBlanc (author).

U.S. Department of the Interior, Geological Survey. (Alton, New Hampshire, 1957; Berwick, New Hampshire-Maine, 1958). 15-Minute Series Topographic Maps, Scale 1:62,500, Contour Interval 20 Feet.

U.S. Department of the Interior, Geological Survey. (1934-1985). Water-Supply Papers, Surface Water Supply of the United States. Washington, D.C.

U.S. Water Resources Council. (June 1977). "Guidelines for Determining Flood Flow Frequency," Bulletin 17A. Washington, D.C.

University of New Hampshire. (April/May 1996). Aerial photography of the Town of Durham & the University of New Hampshire Base Map. Scale 1:400, Contour Interval 2 feet.



FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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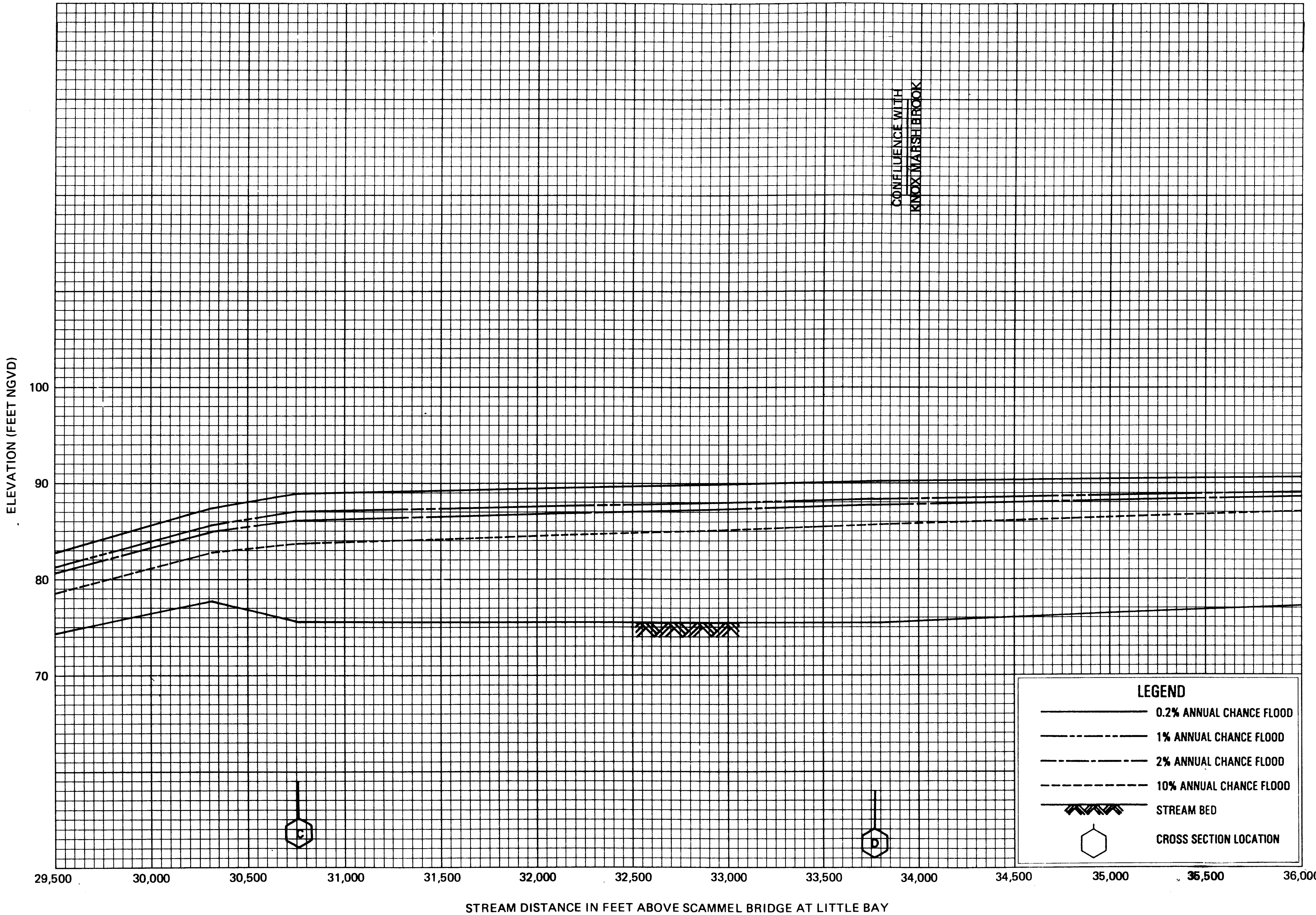

FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

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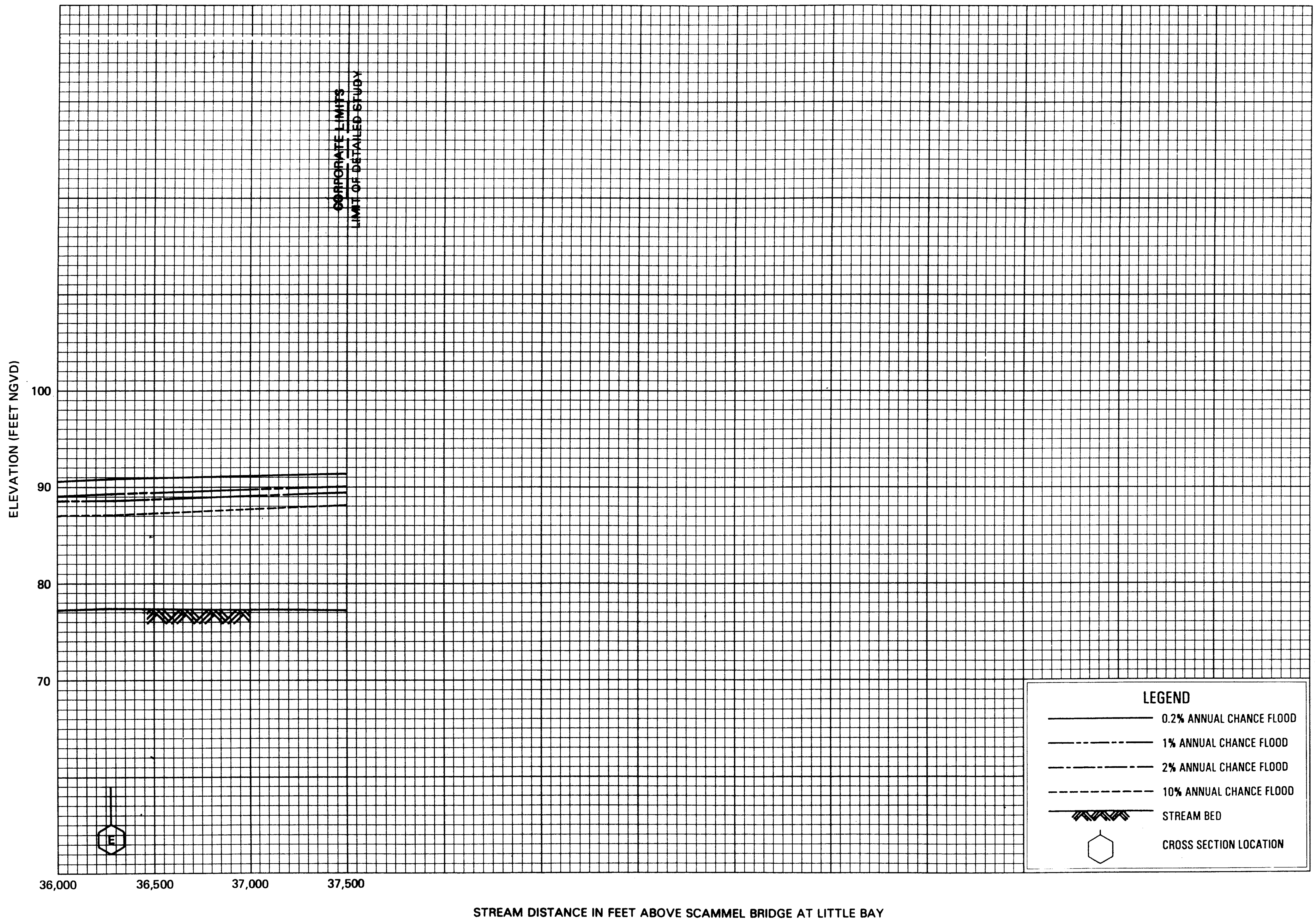

FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

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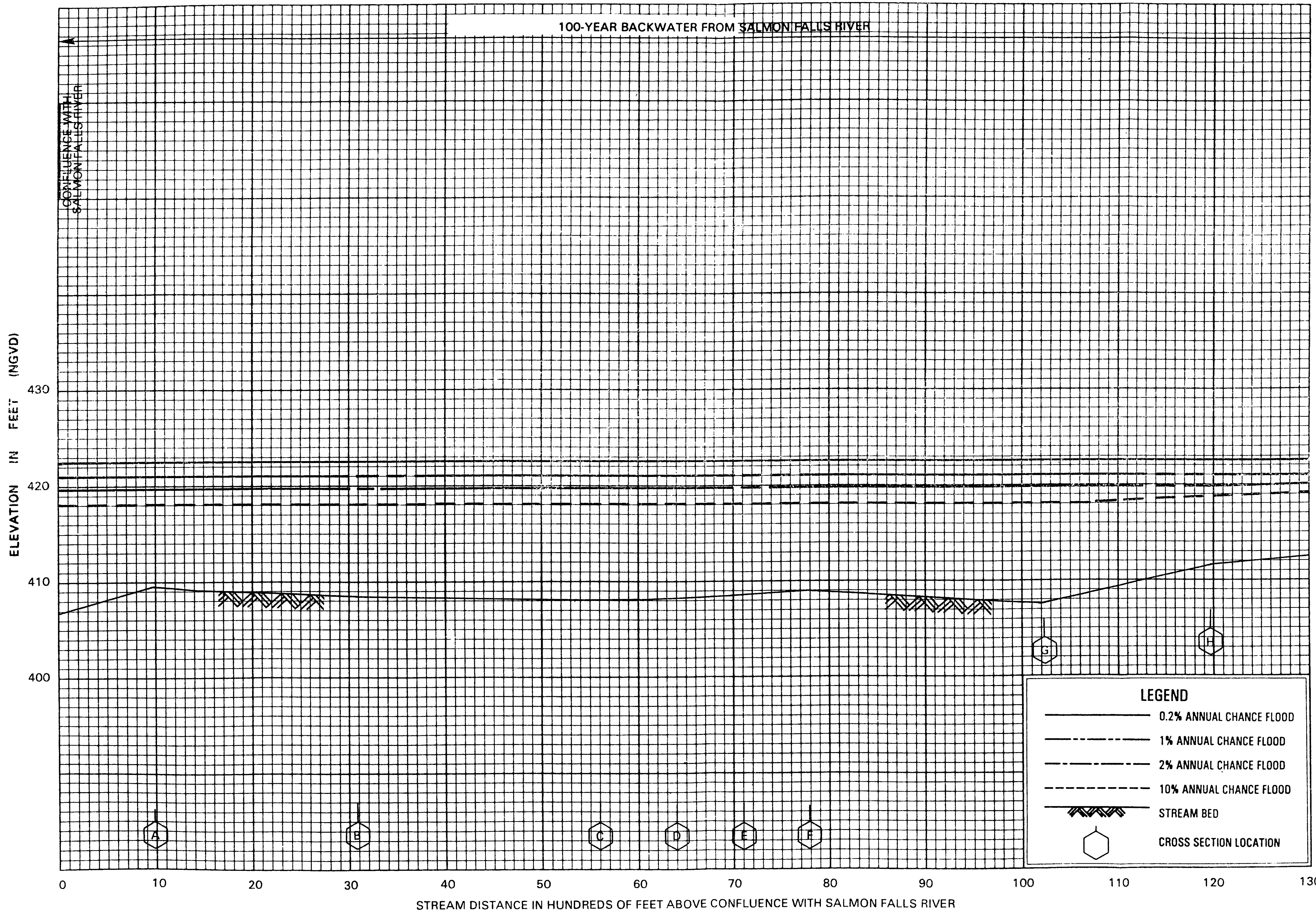


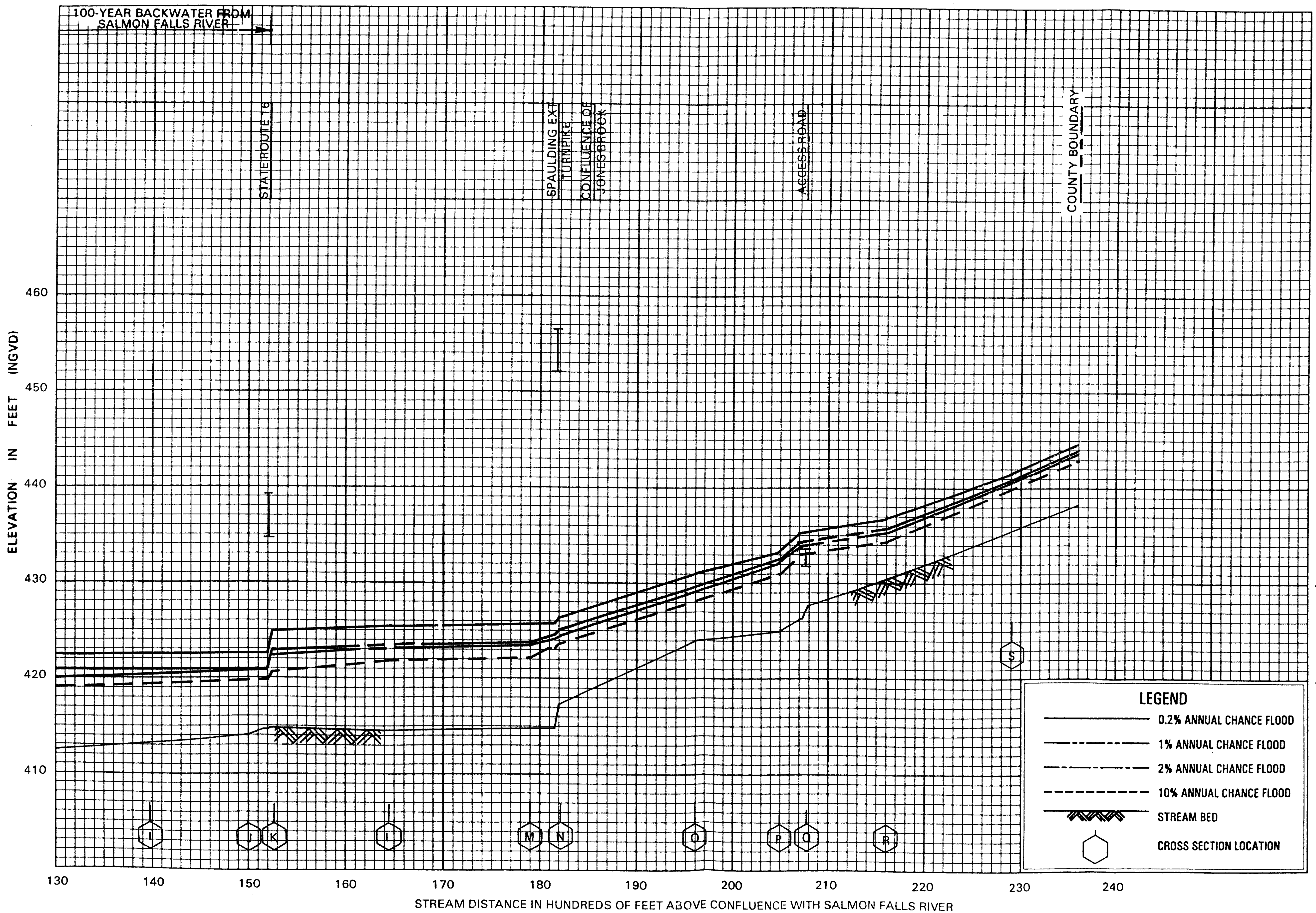
FLOOD PROFILES

BRANCH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

BRANCH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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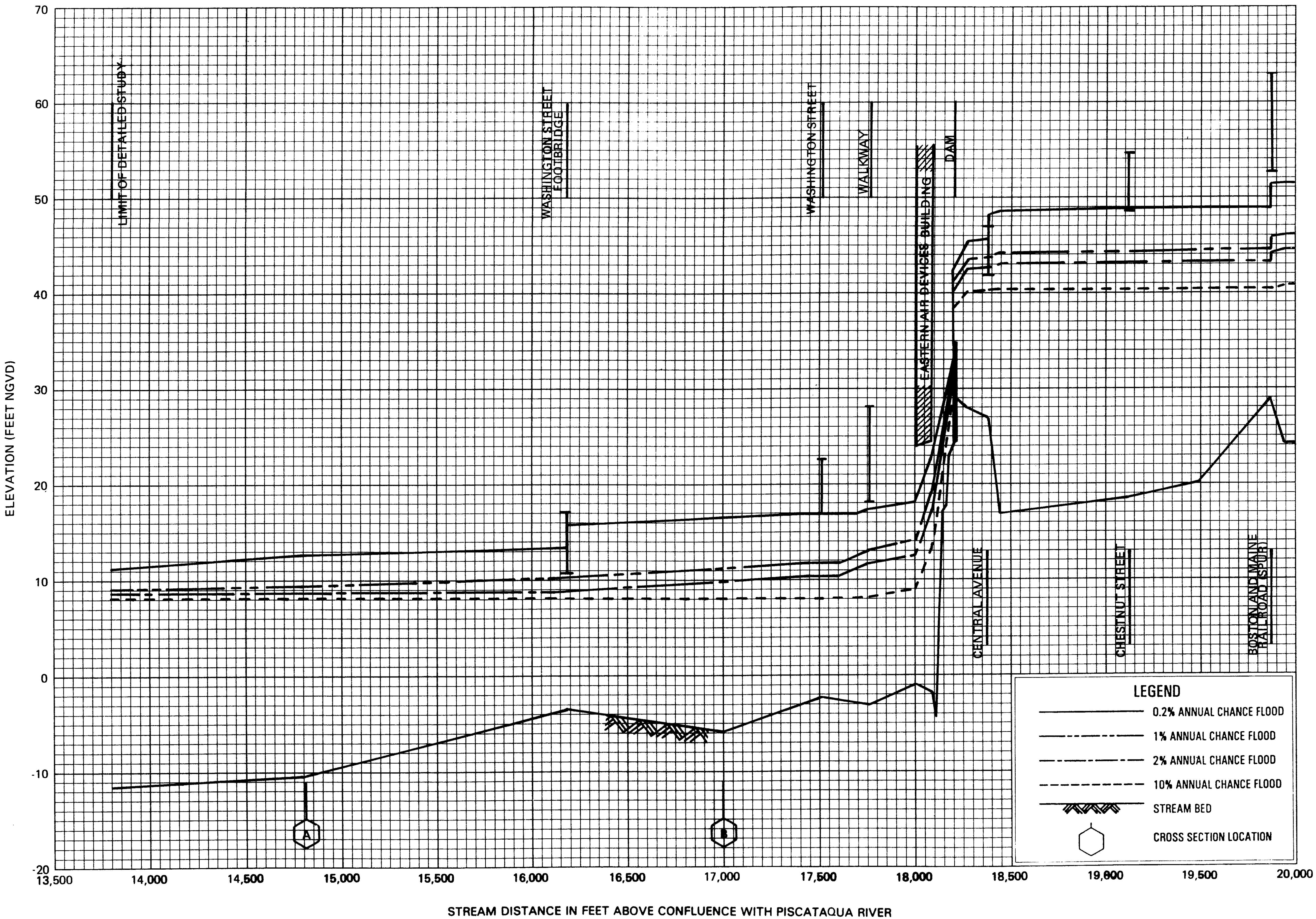

FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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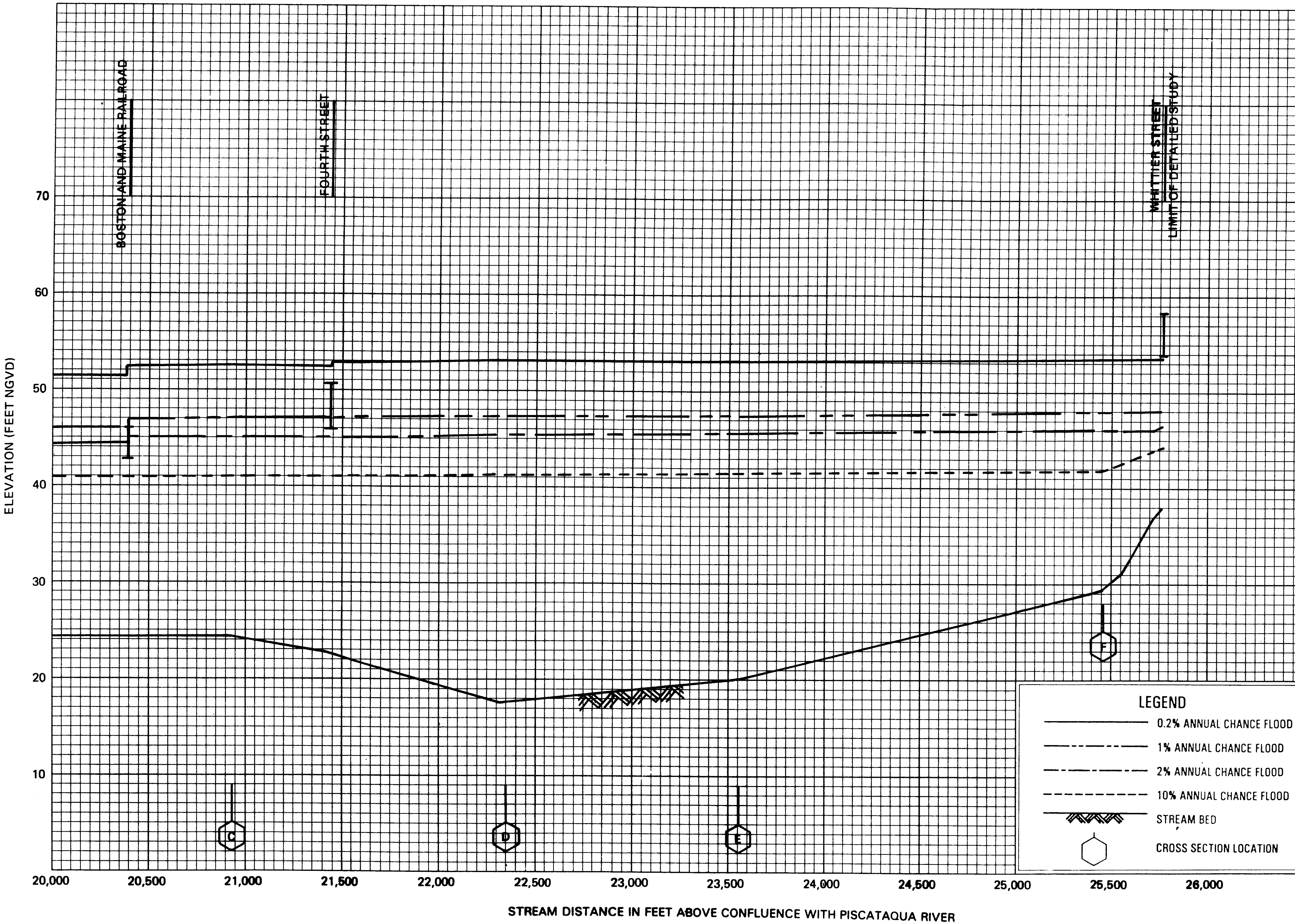


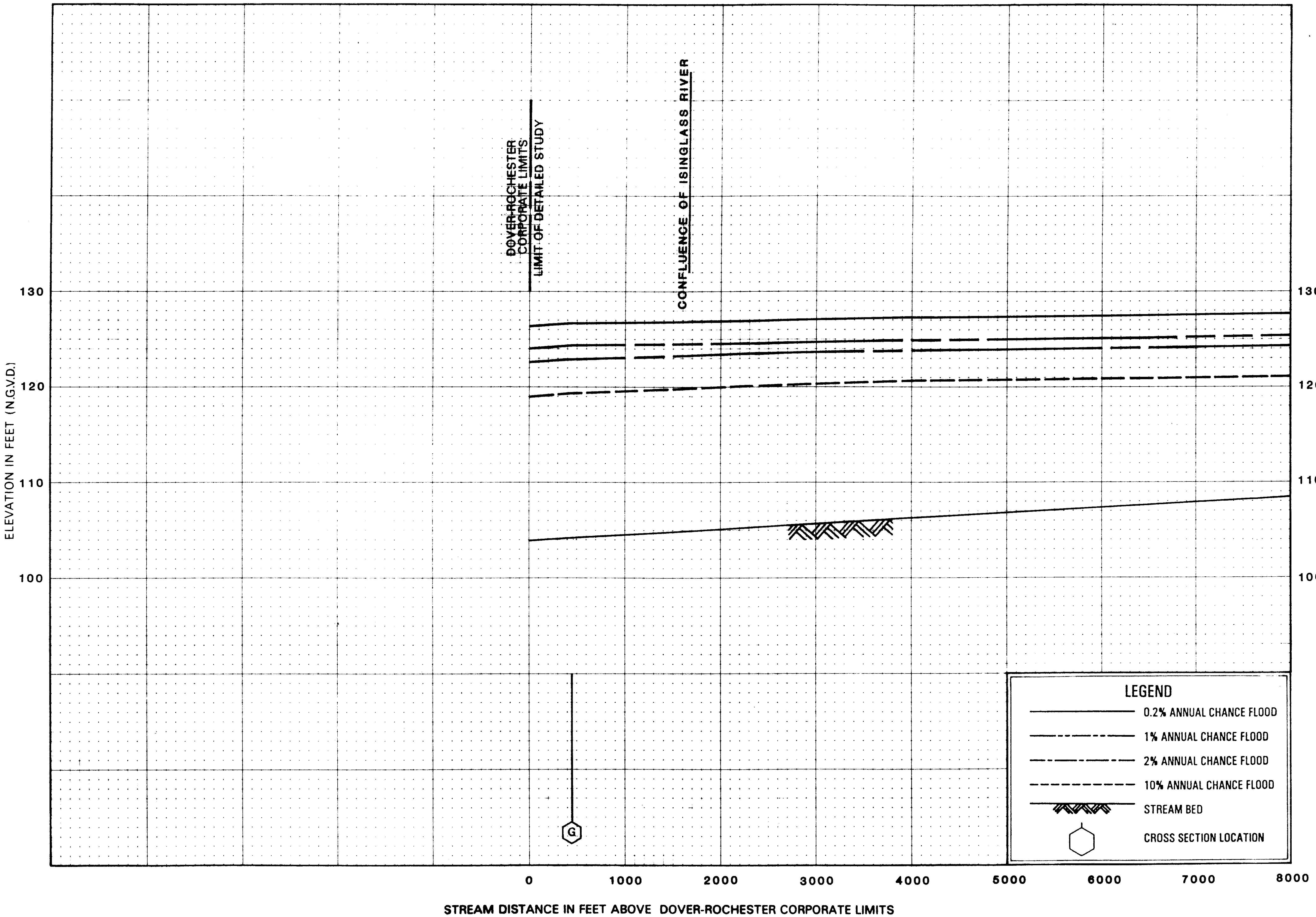
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

COCHECO RIVER

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STRAFFORD COUNTY, NH

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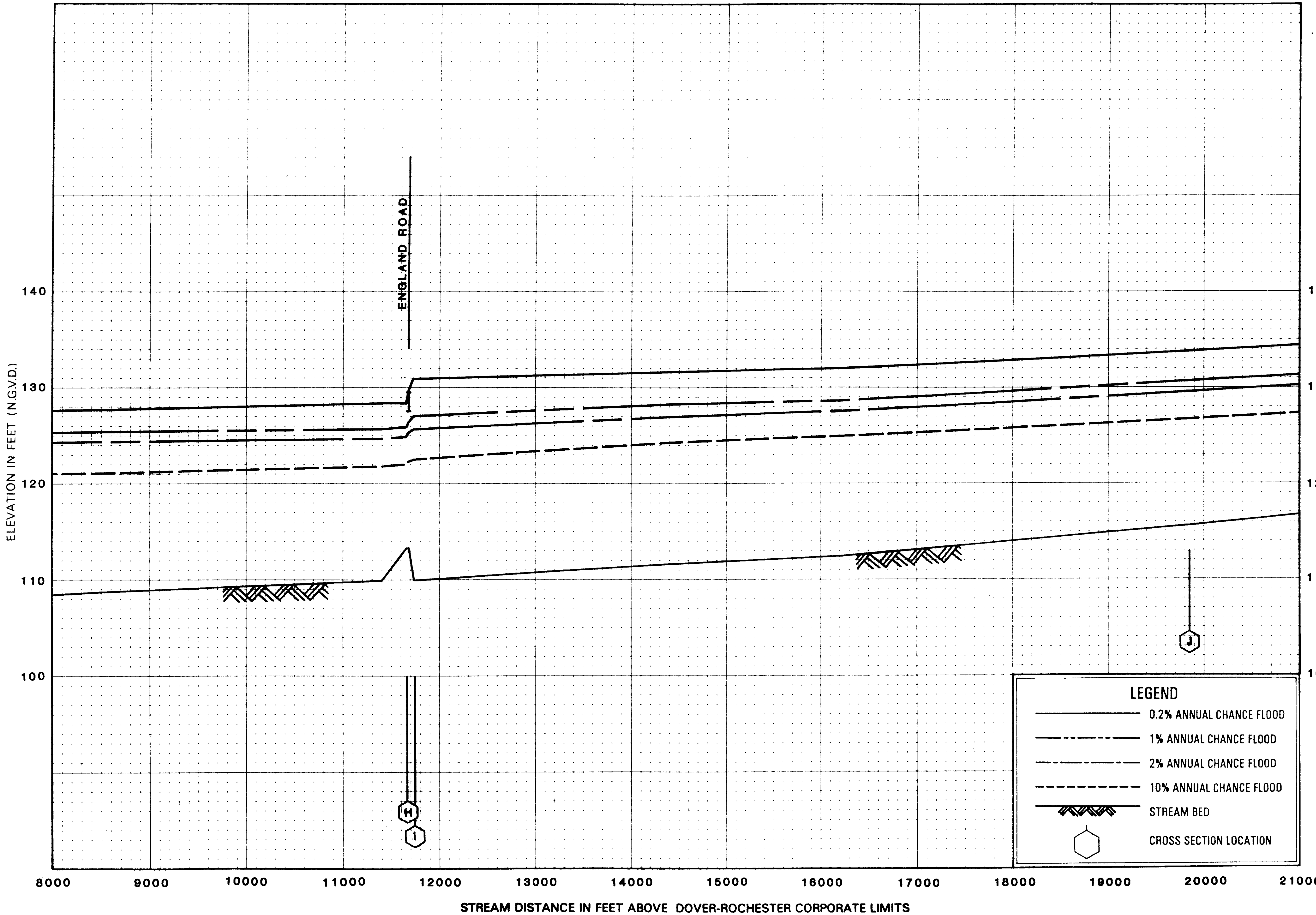

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COCHECO RIVER

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STRAFFORD COUNTY, NH

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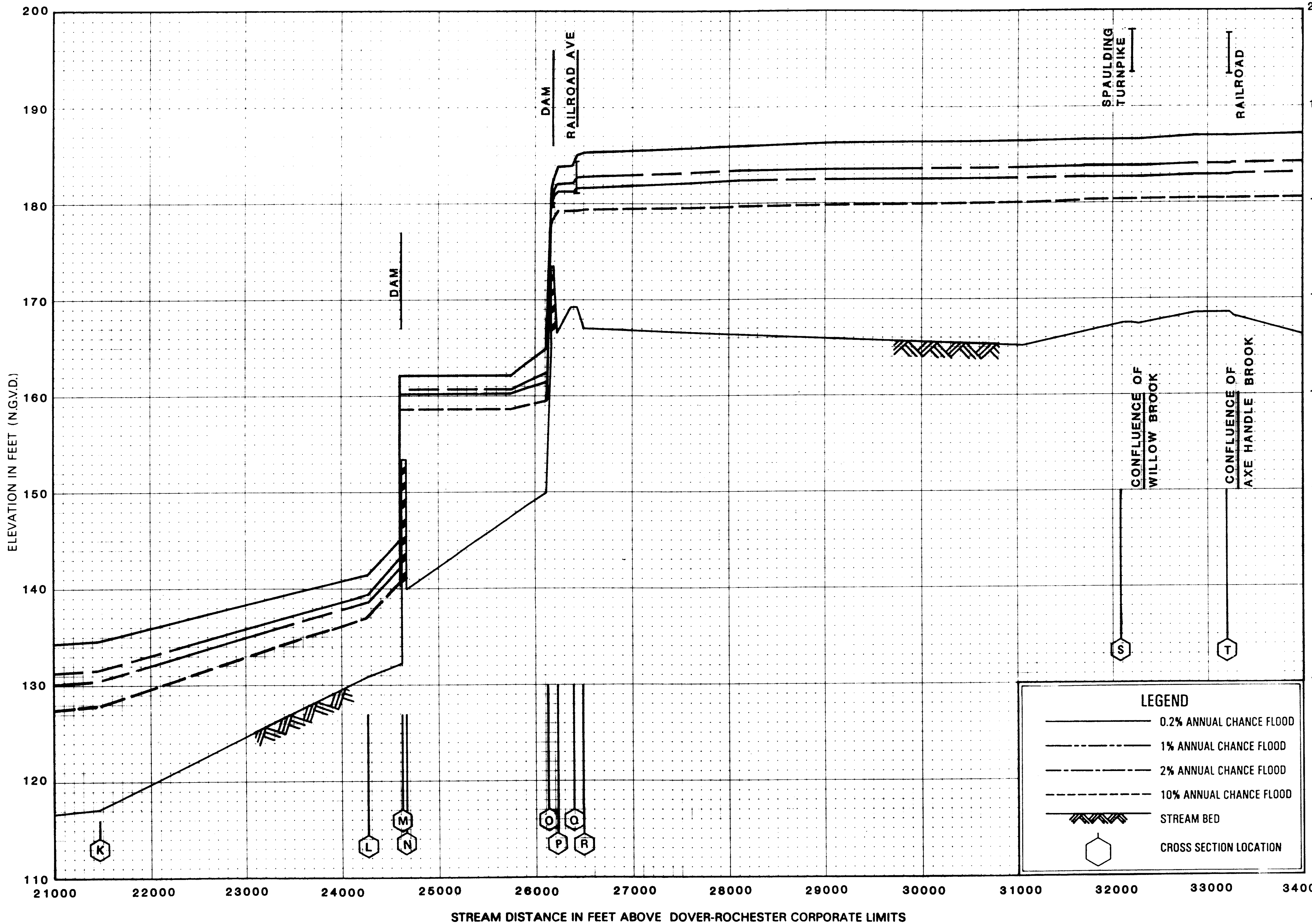


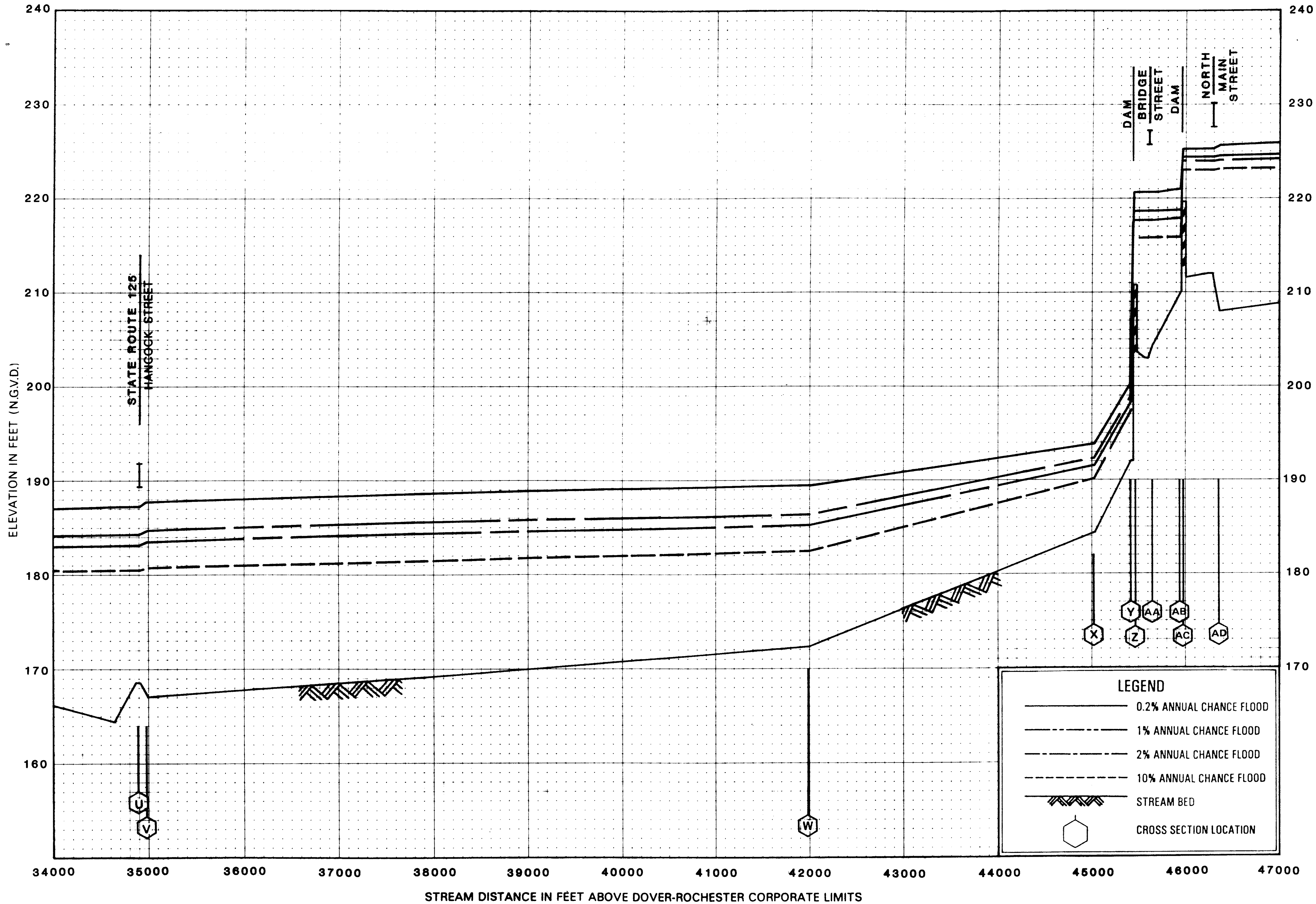
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



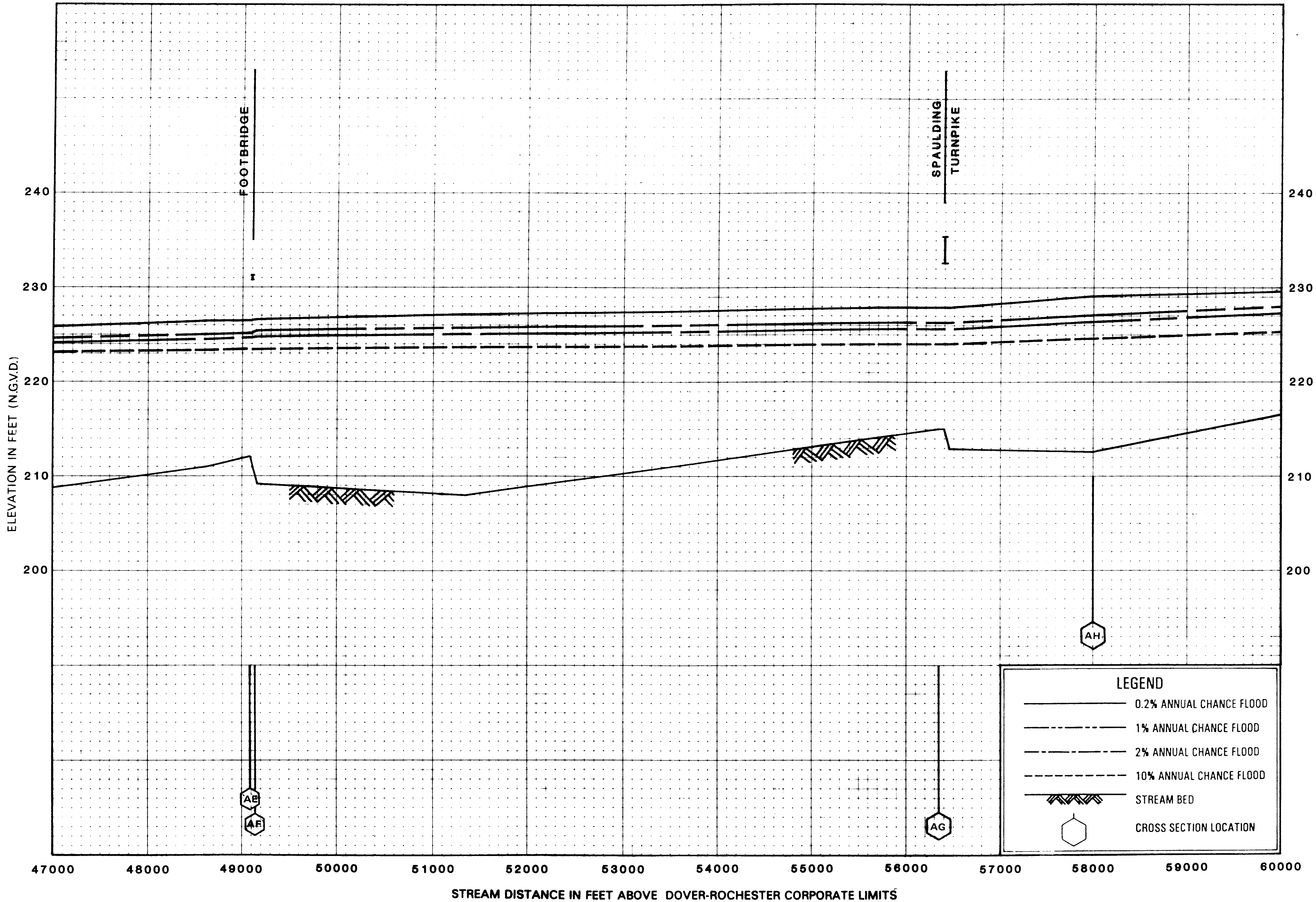
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



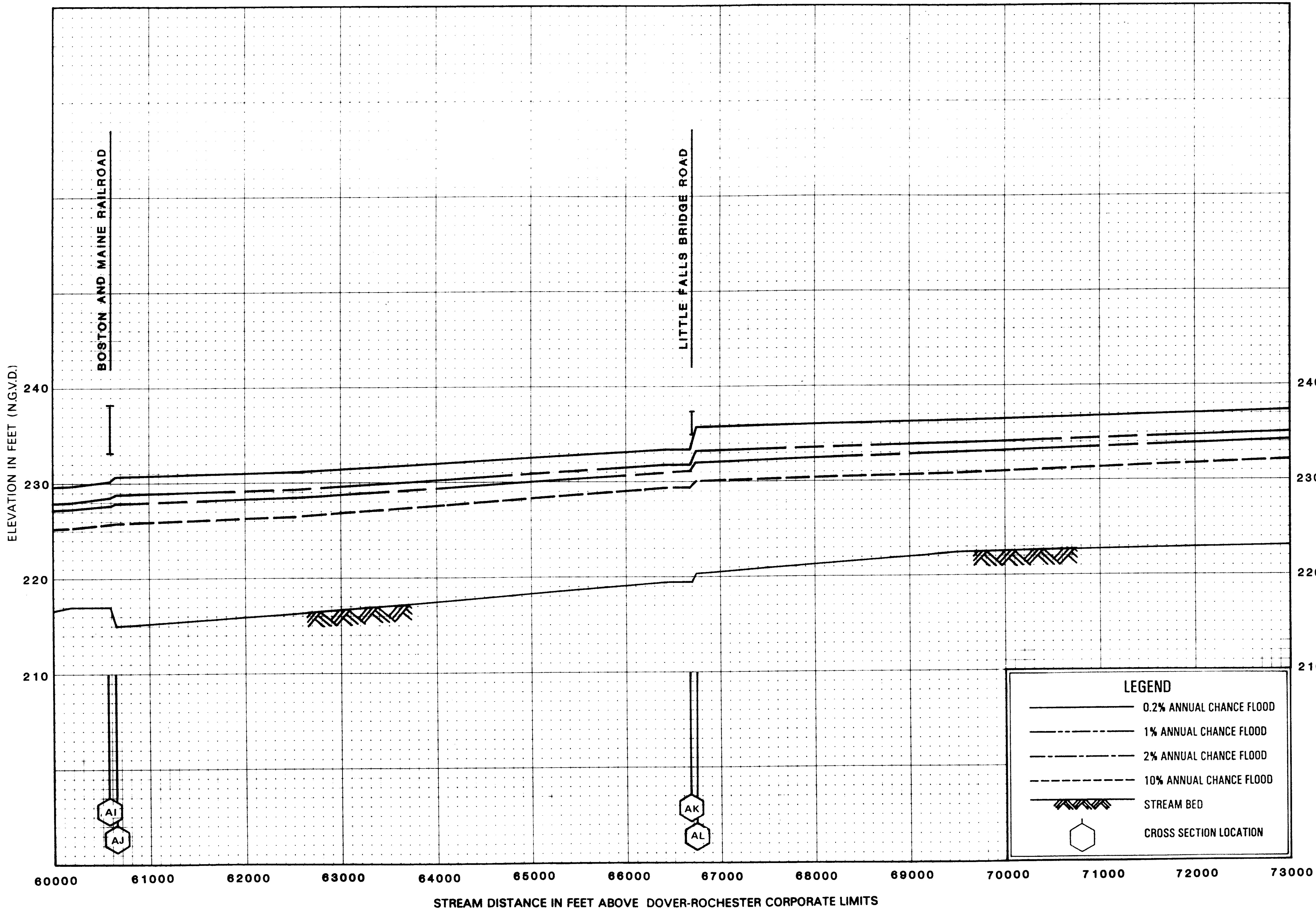
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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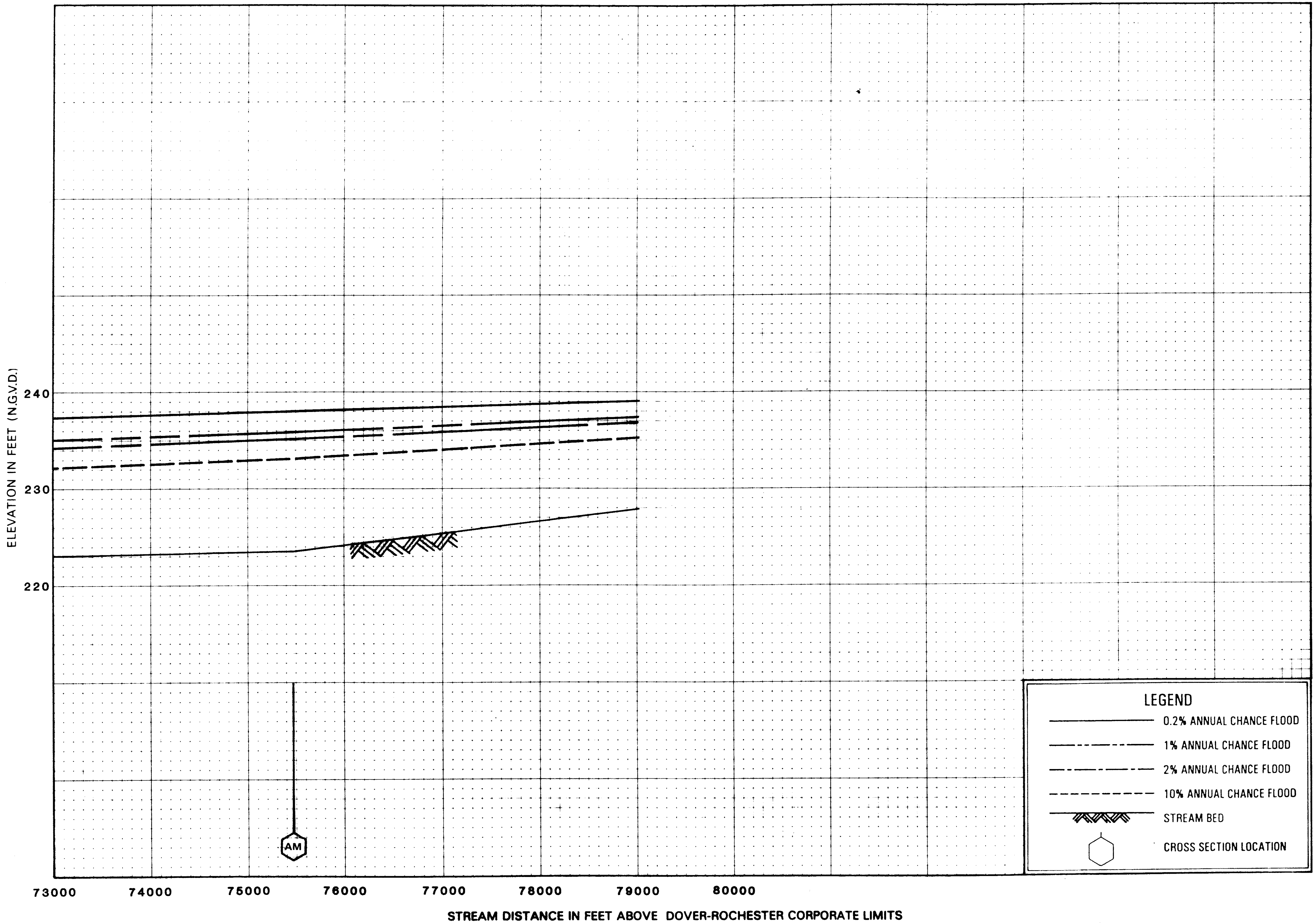


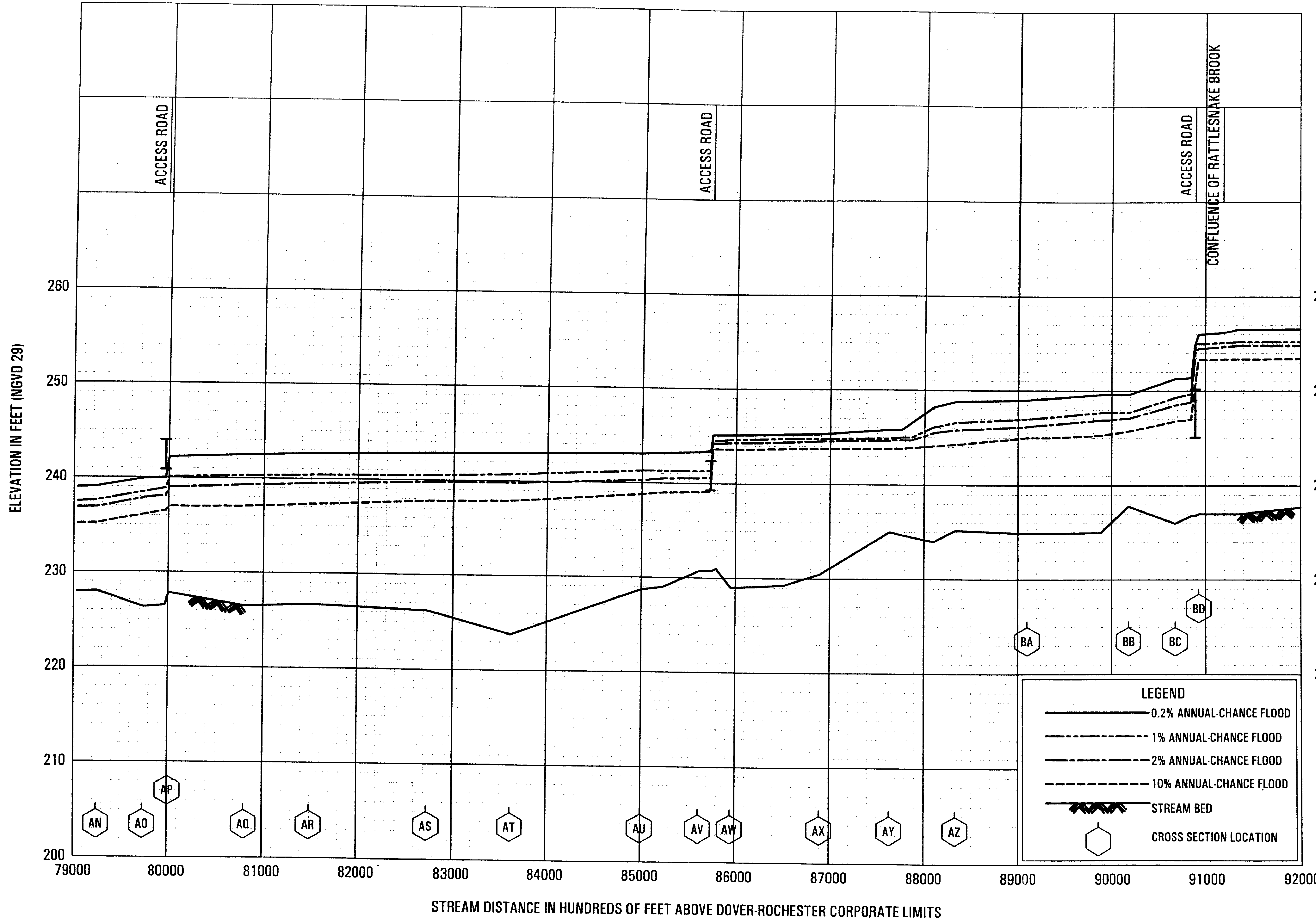
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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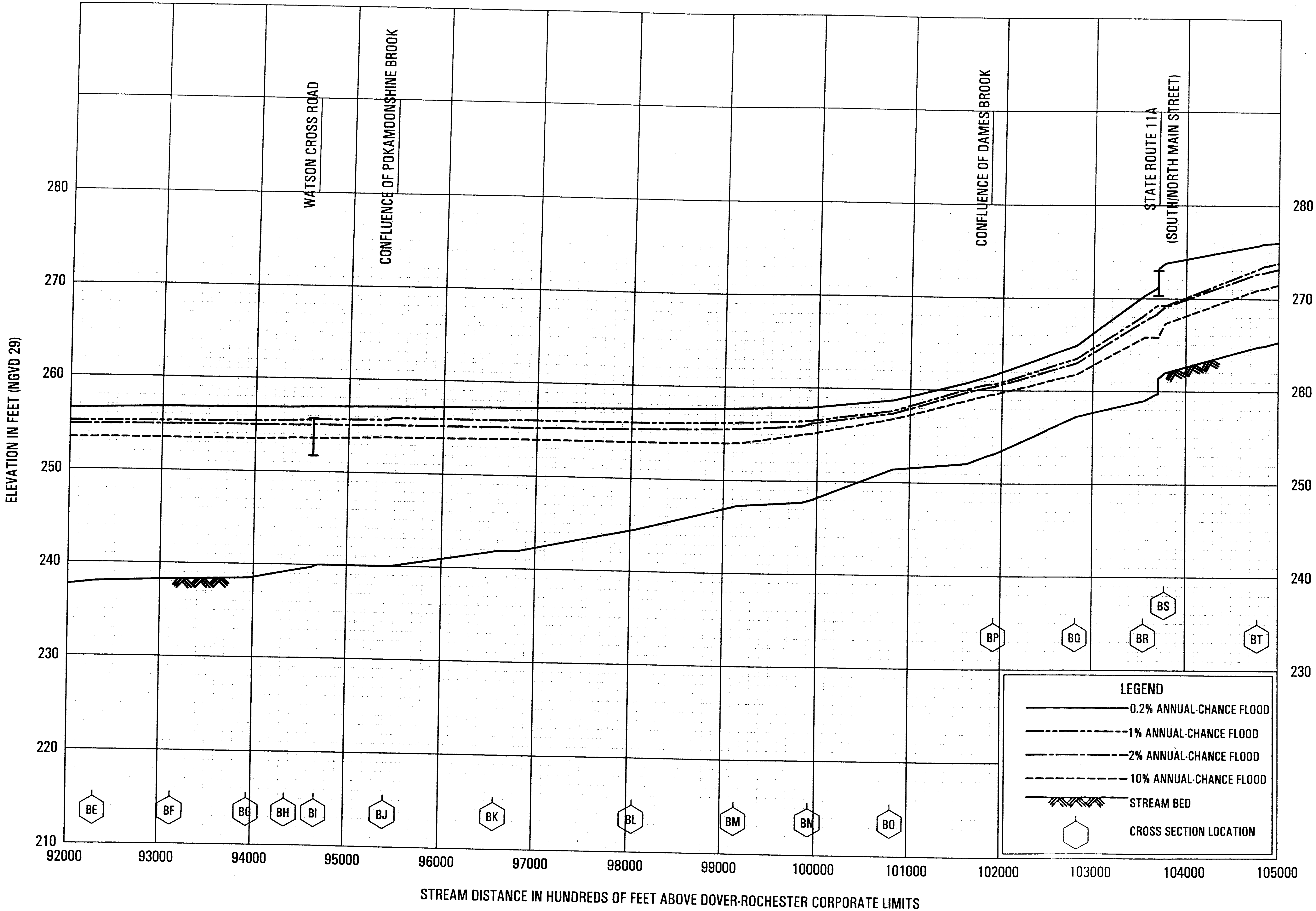


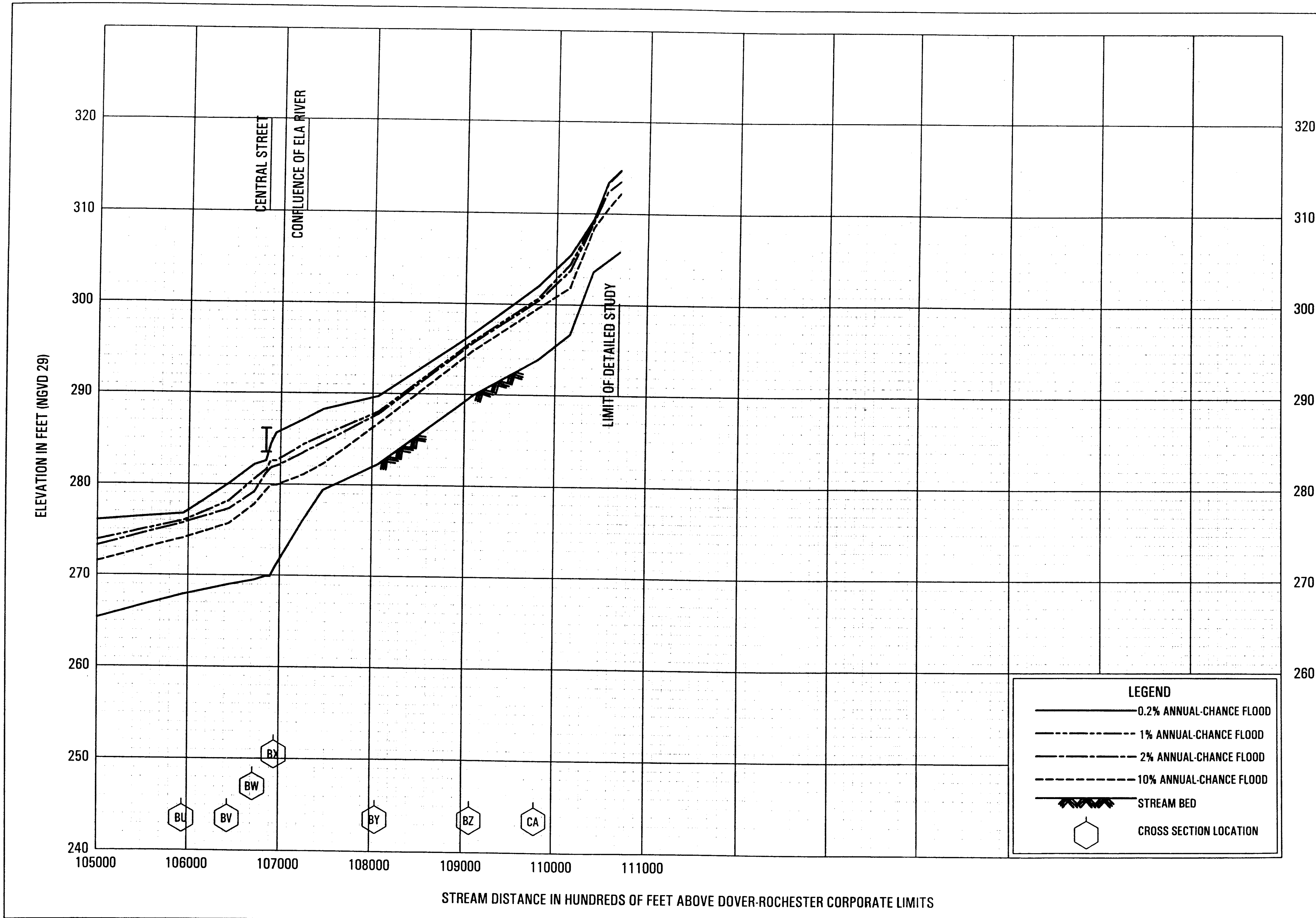
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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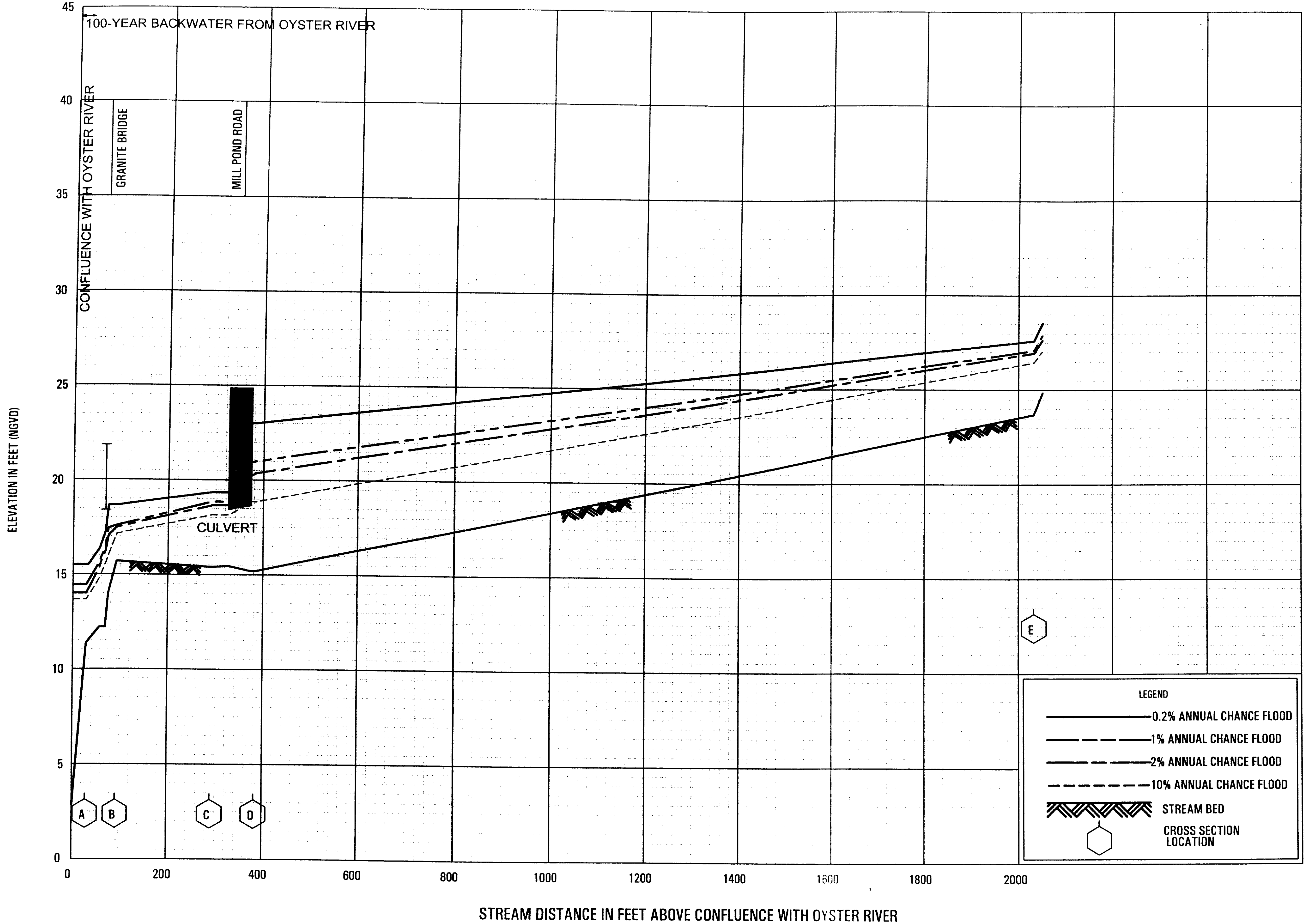


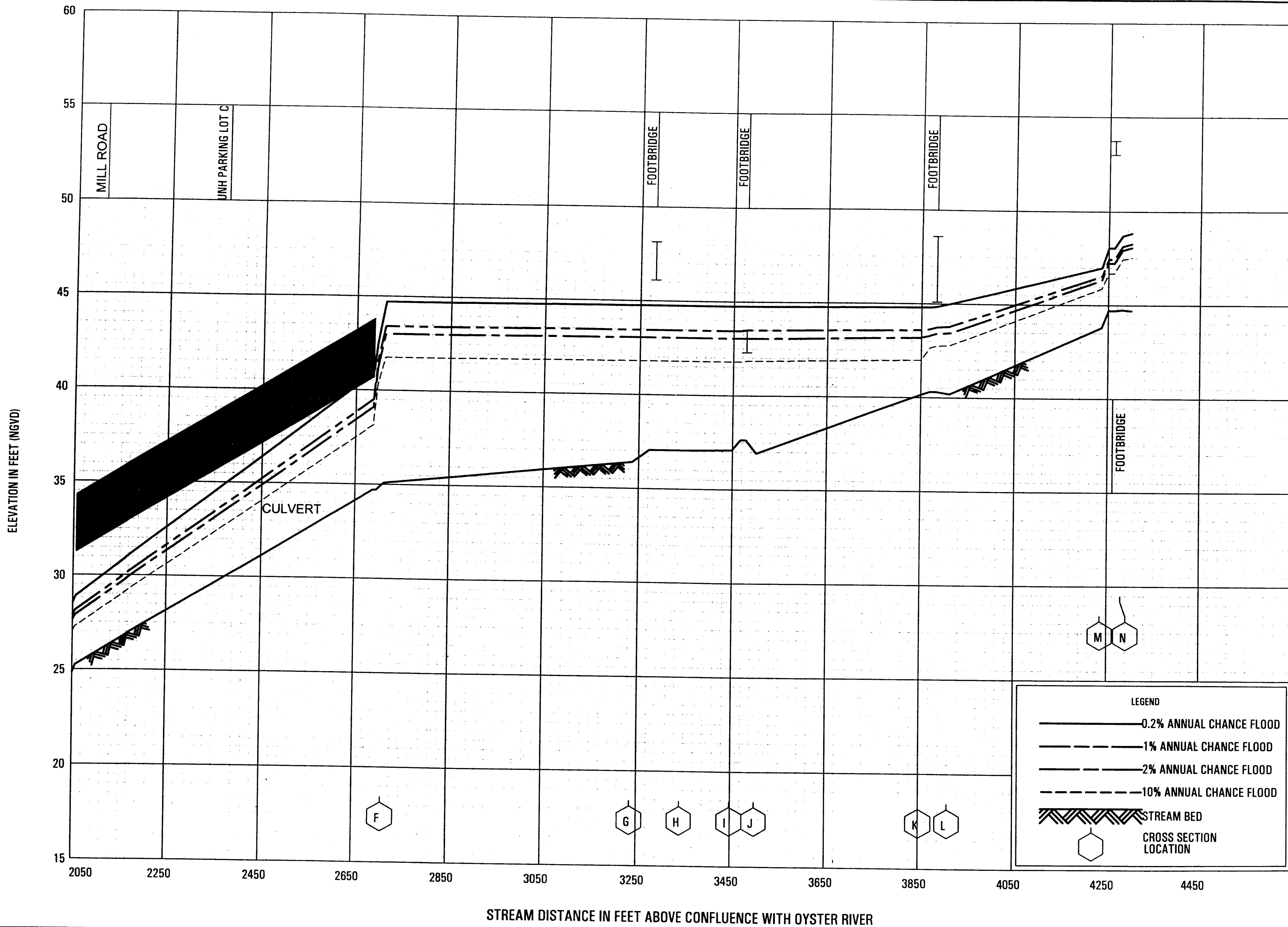
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



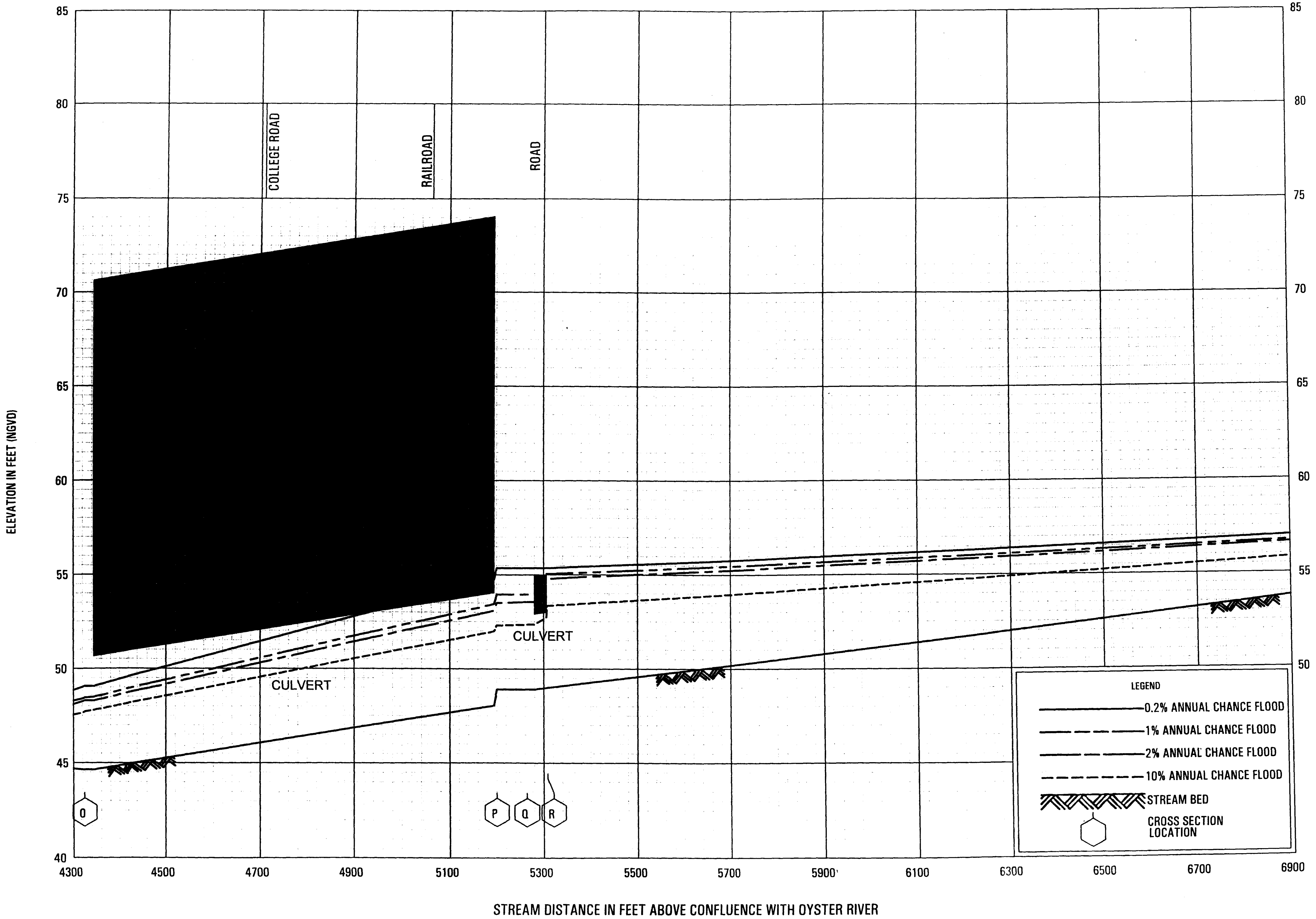
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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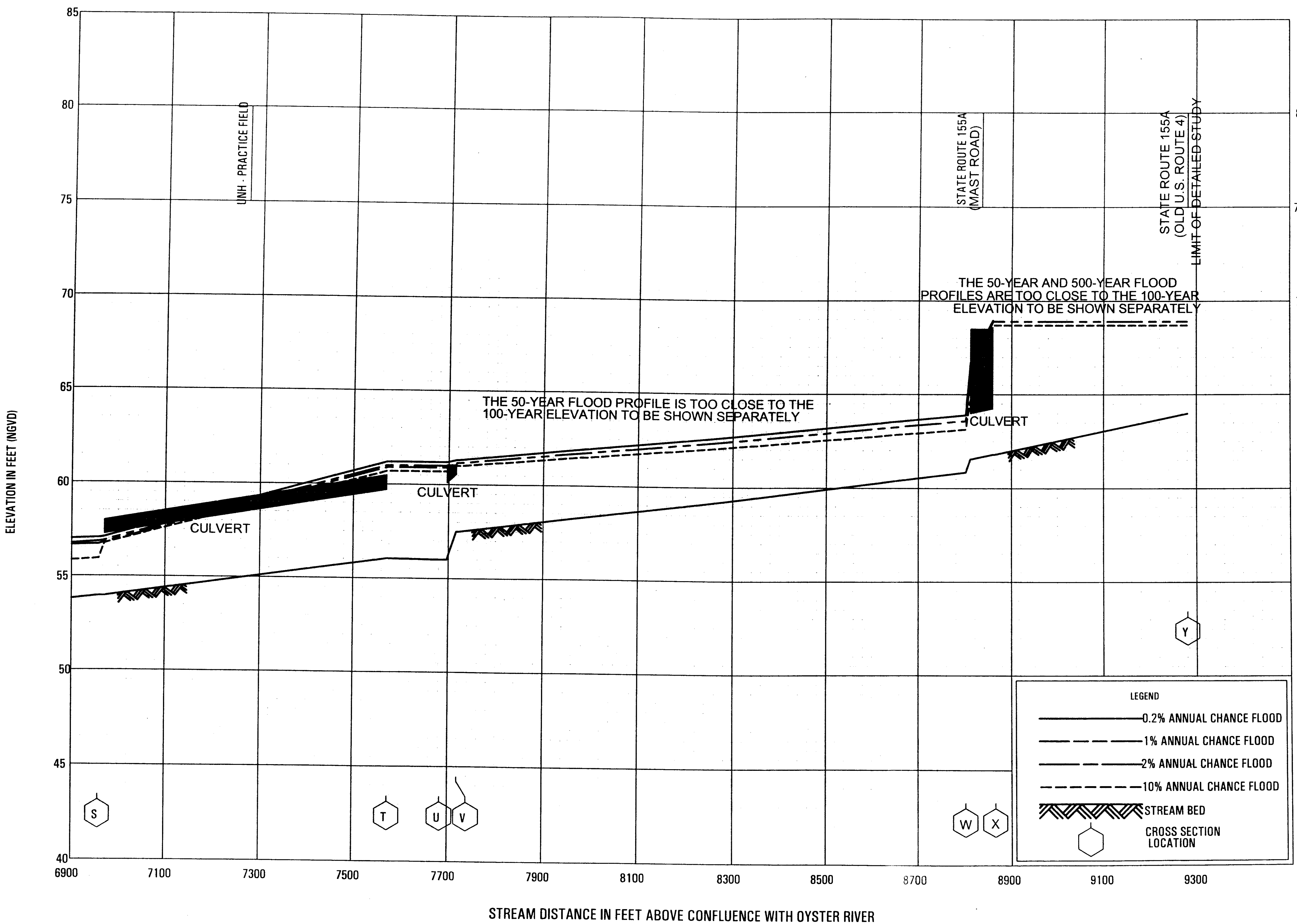


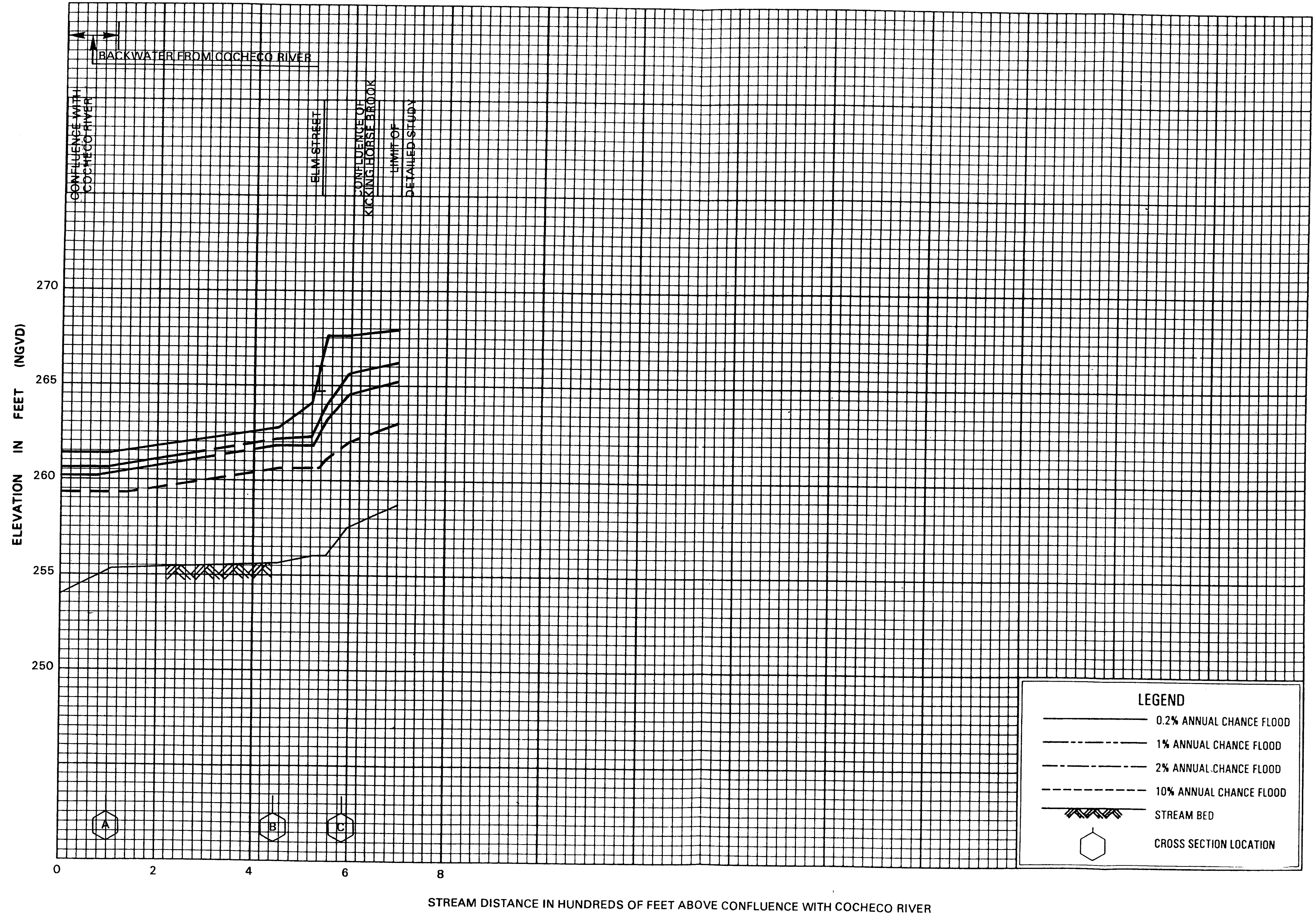
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

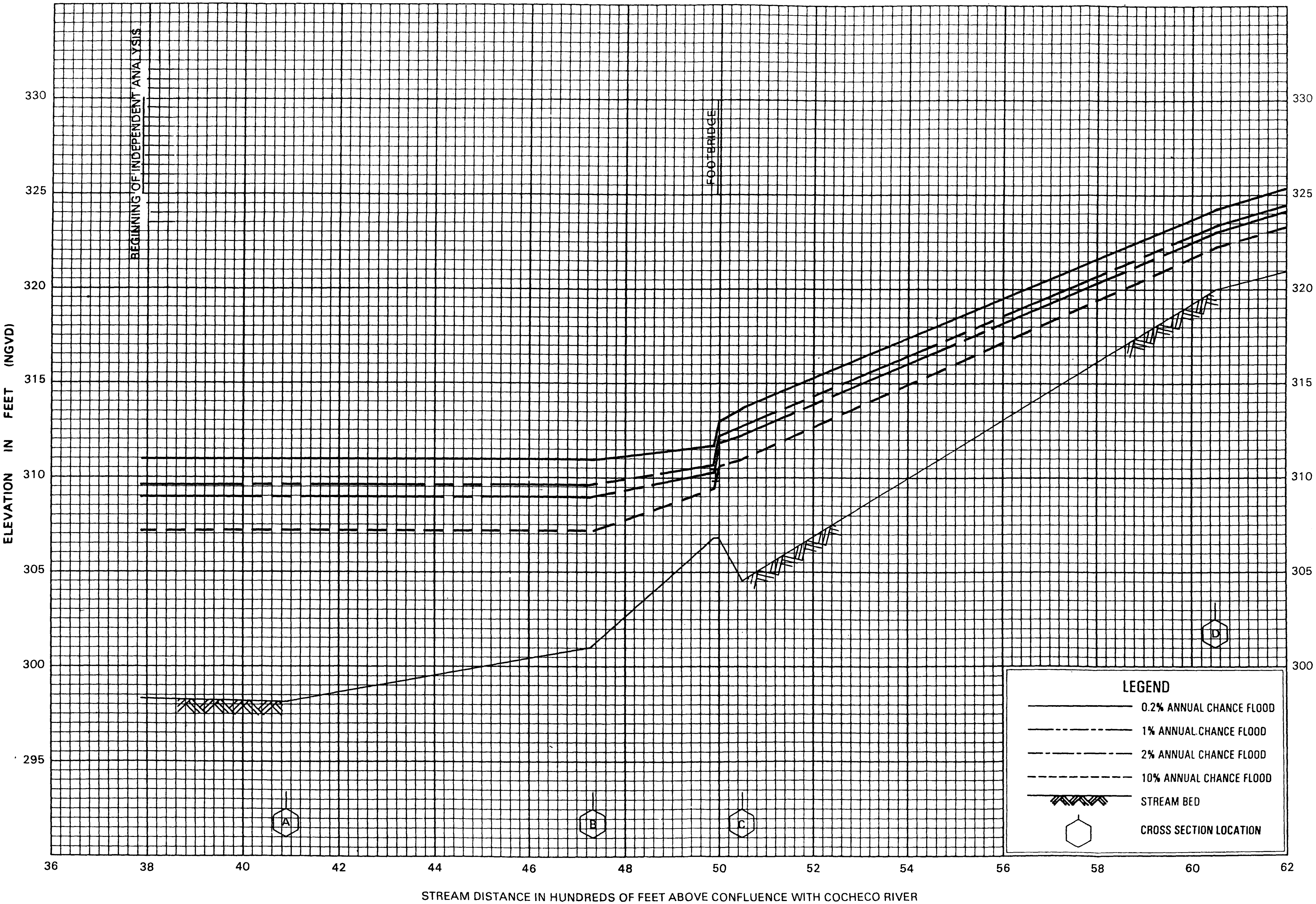


FLOOD PROFILES

DAMES BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



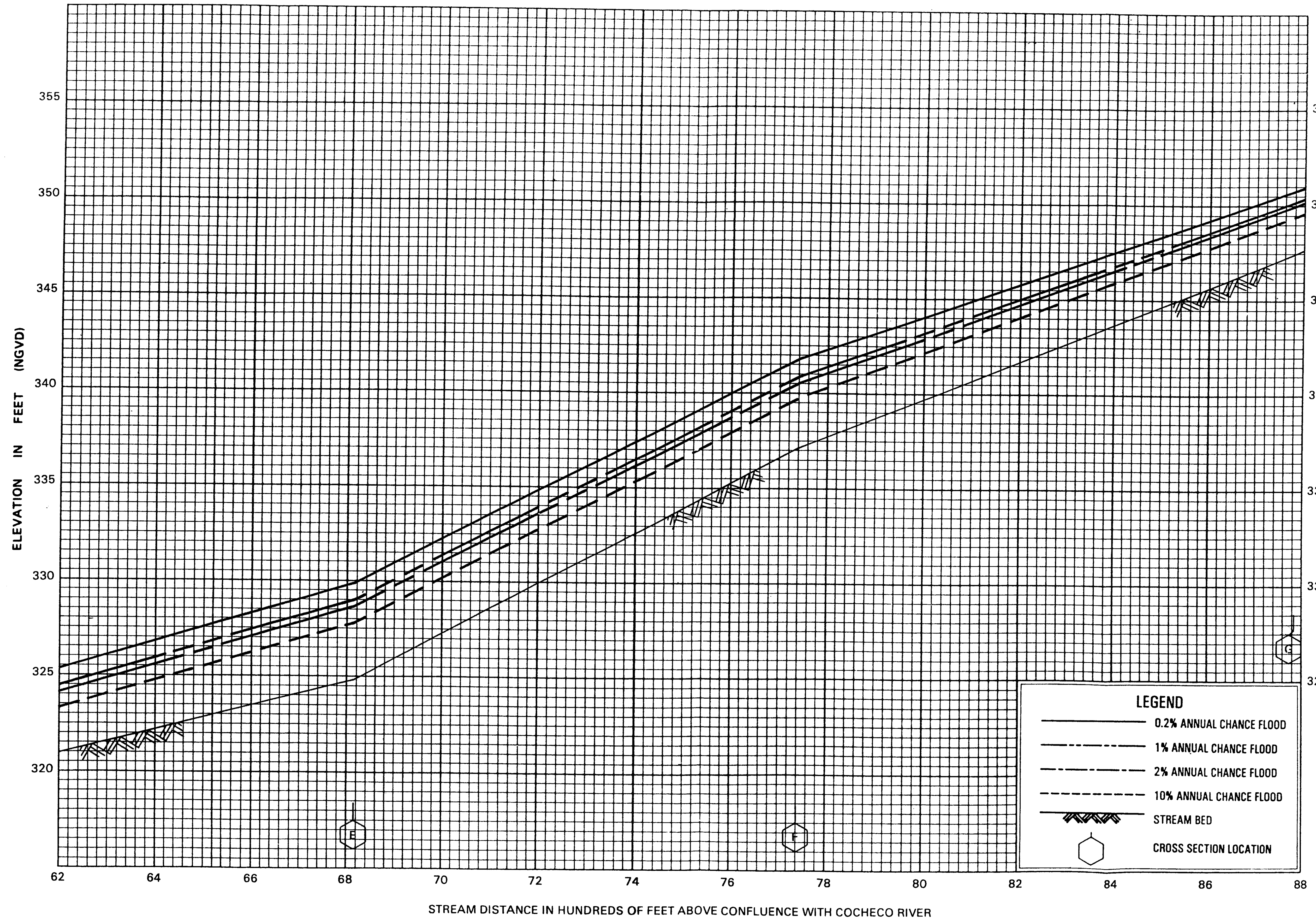
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



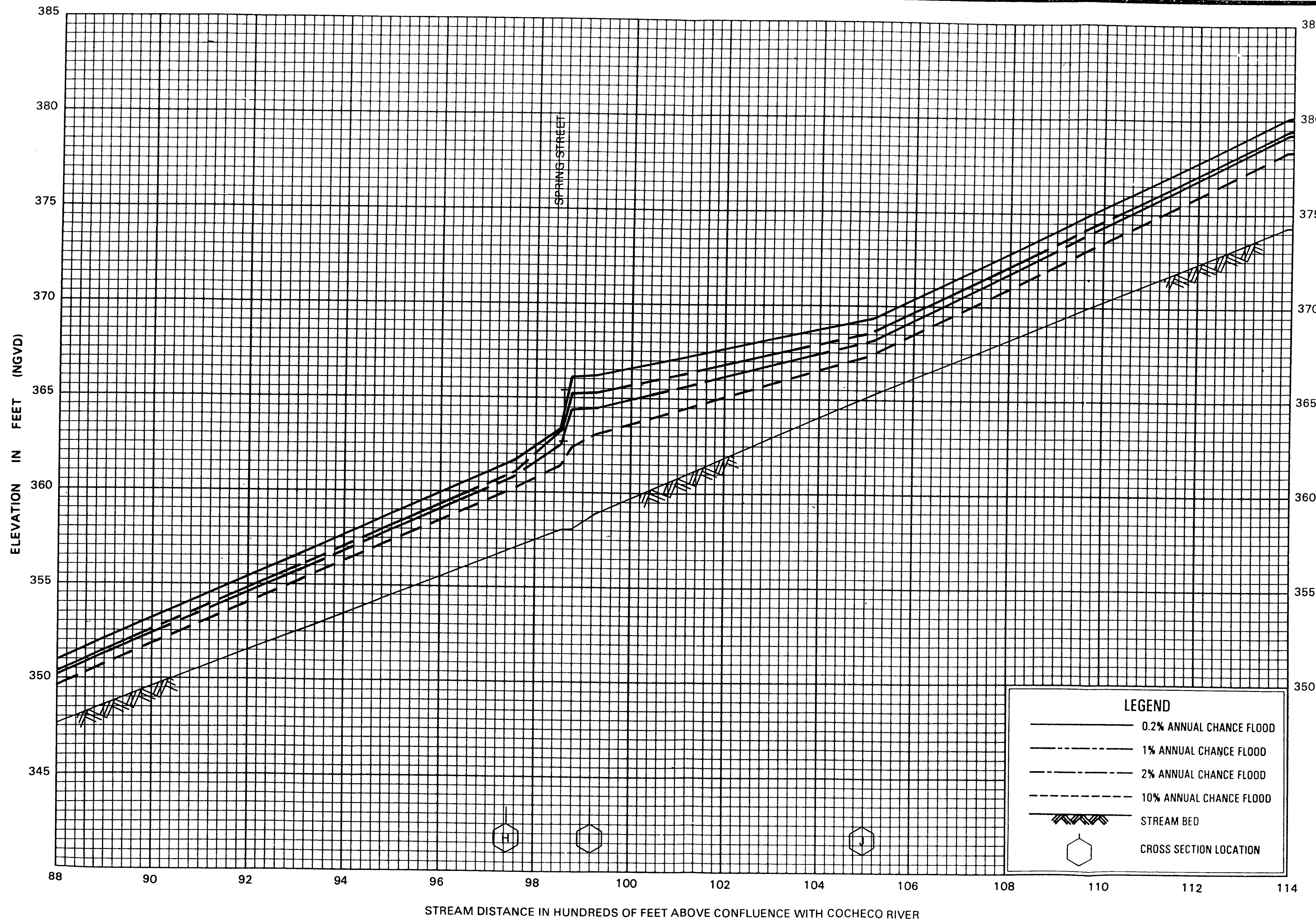
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

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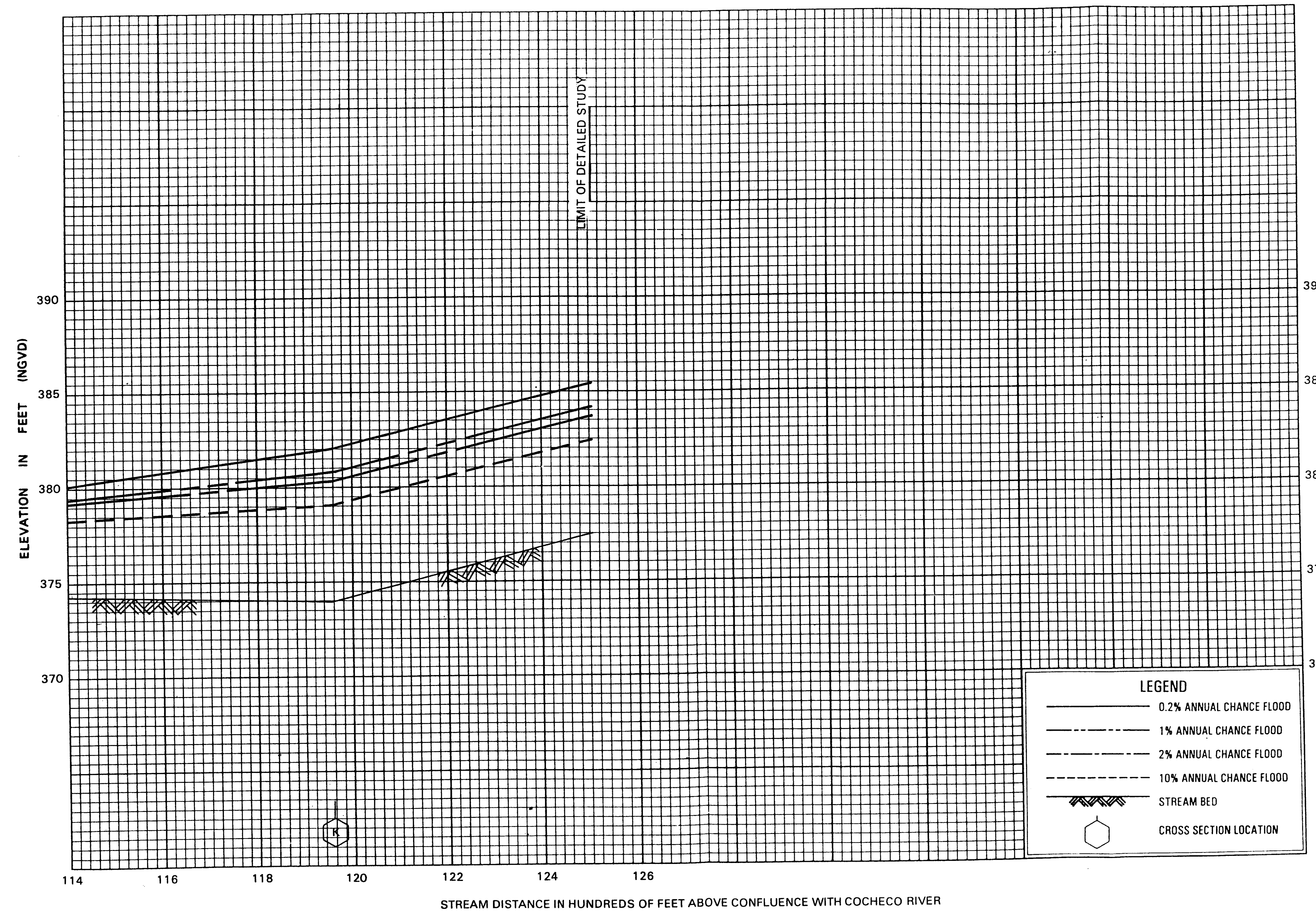
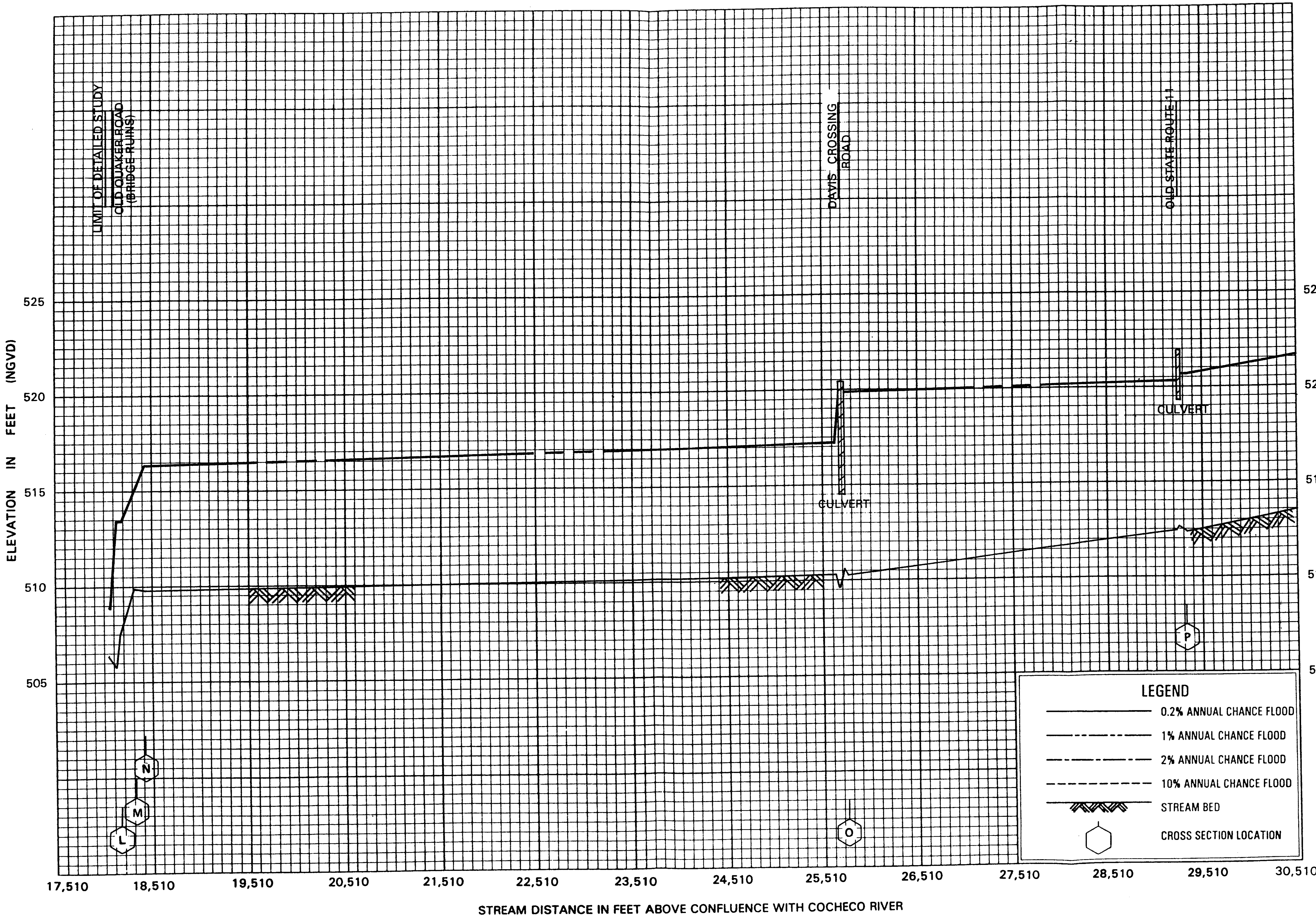


FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



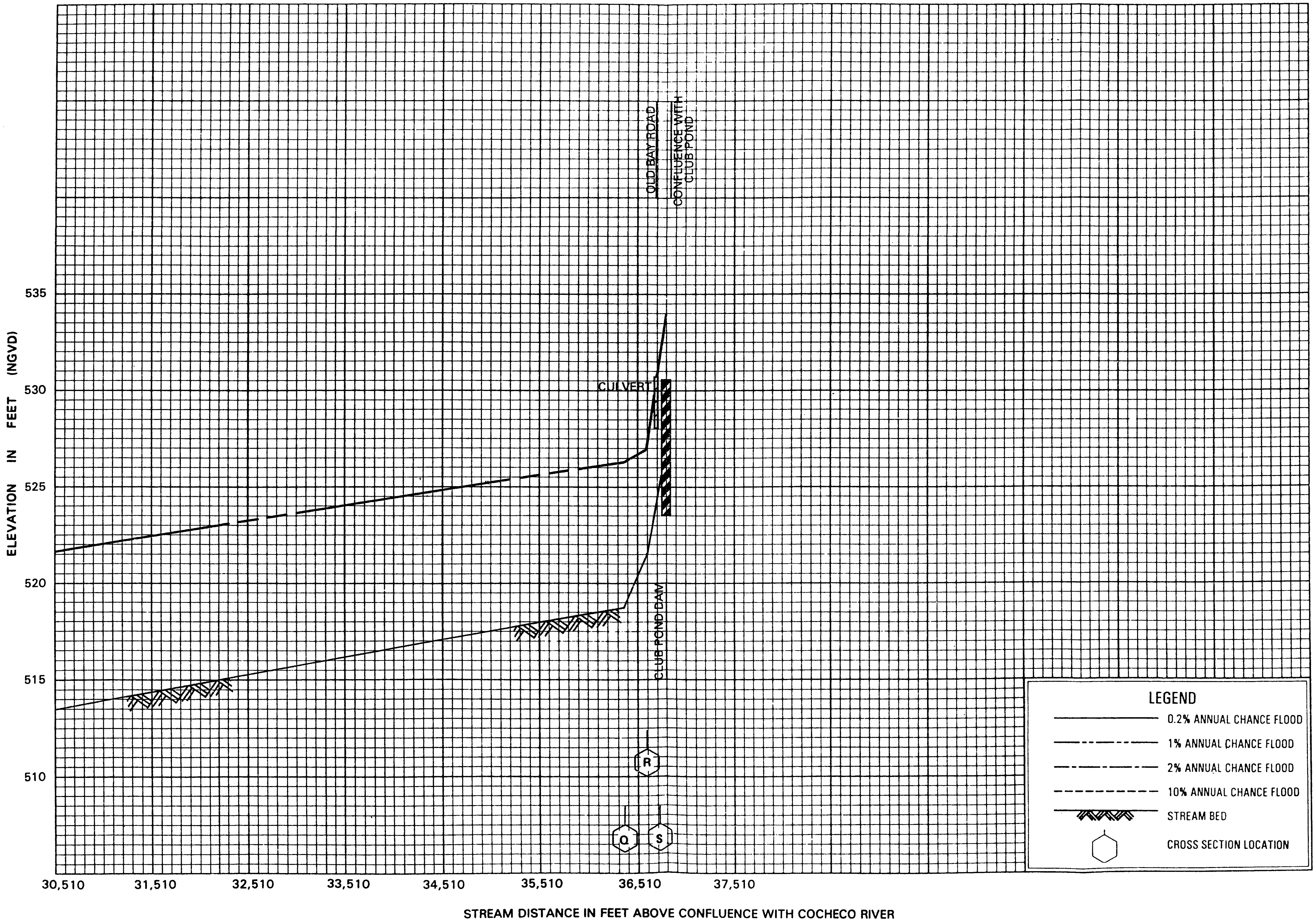
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

27P



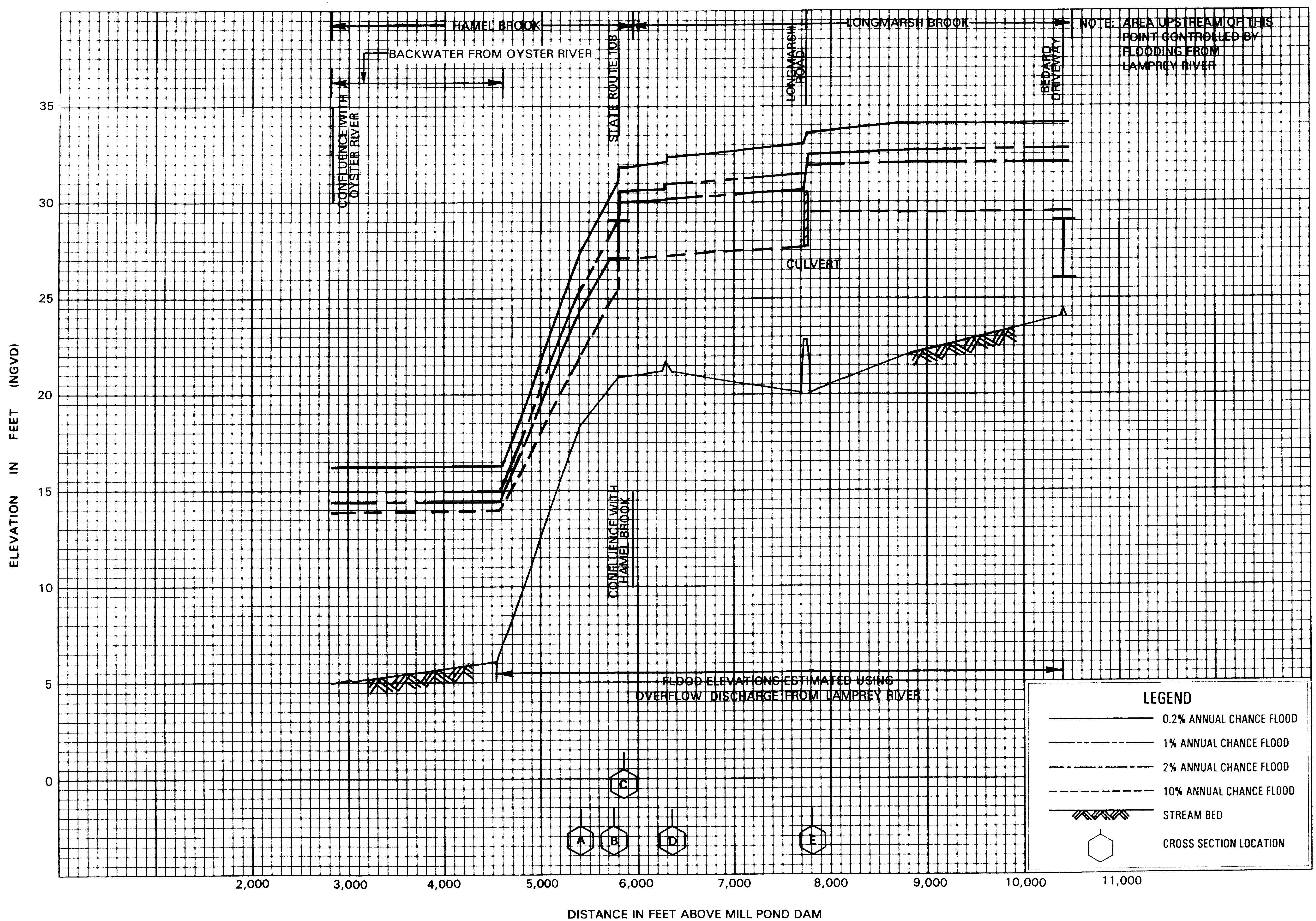
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

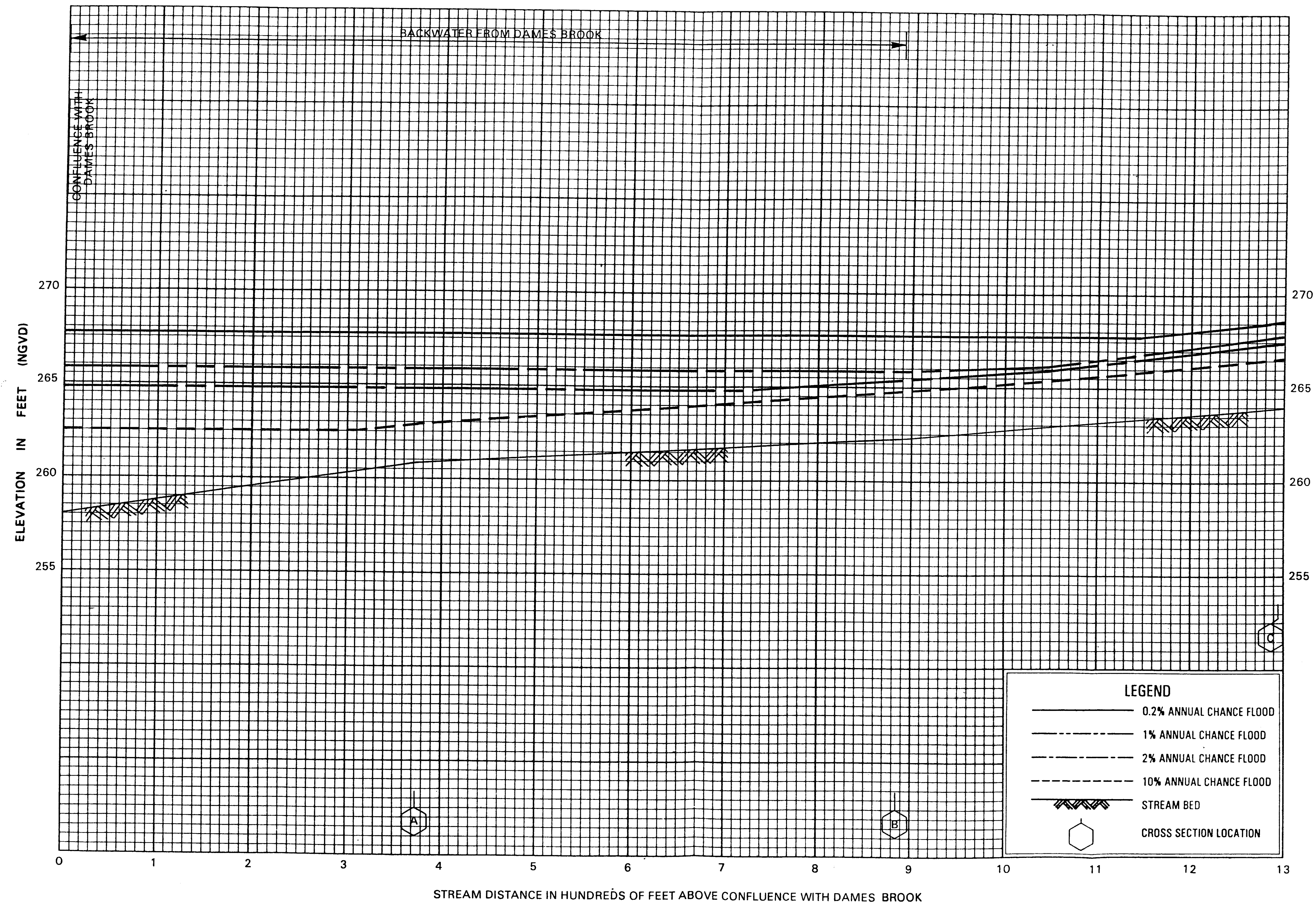
HAMEL BROOK – LONGMARSH BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

N342456



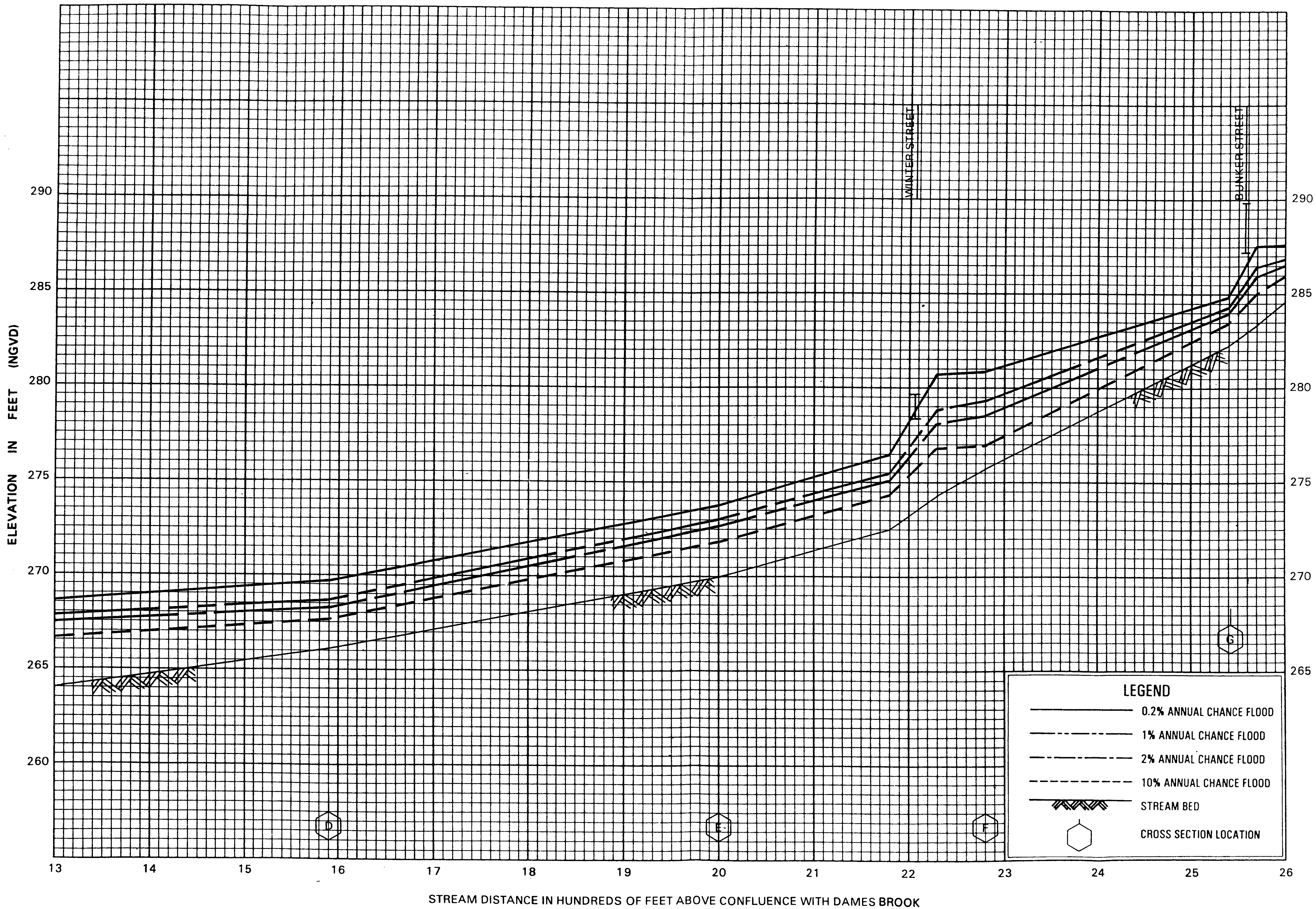
FLOOD PROFILES

KICKING HORSE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



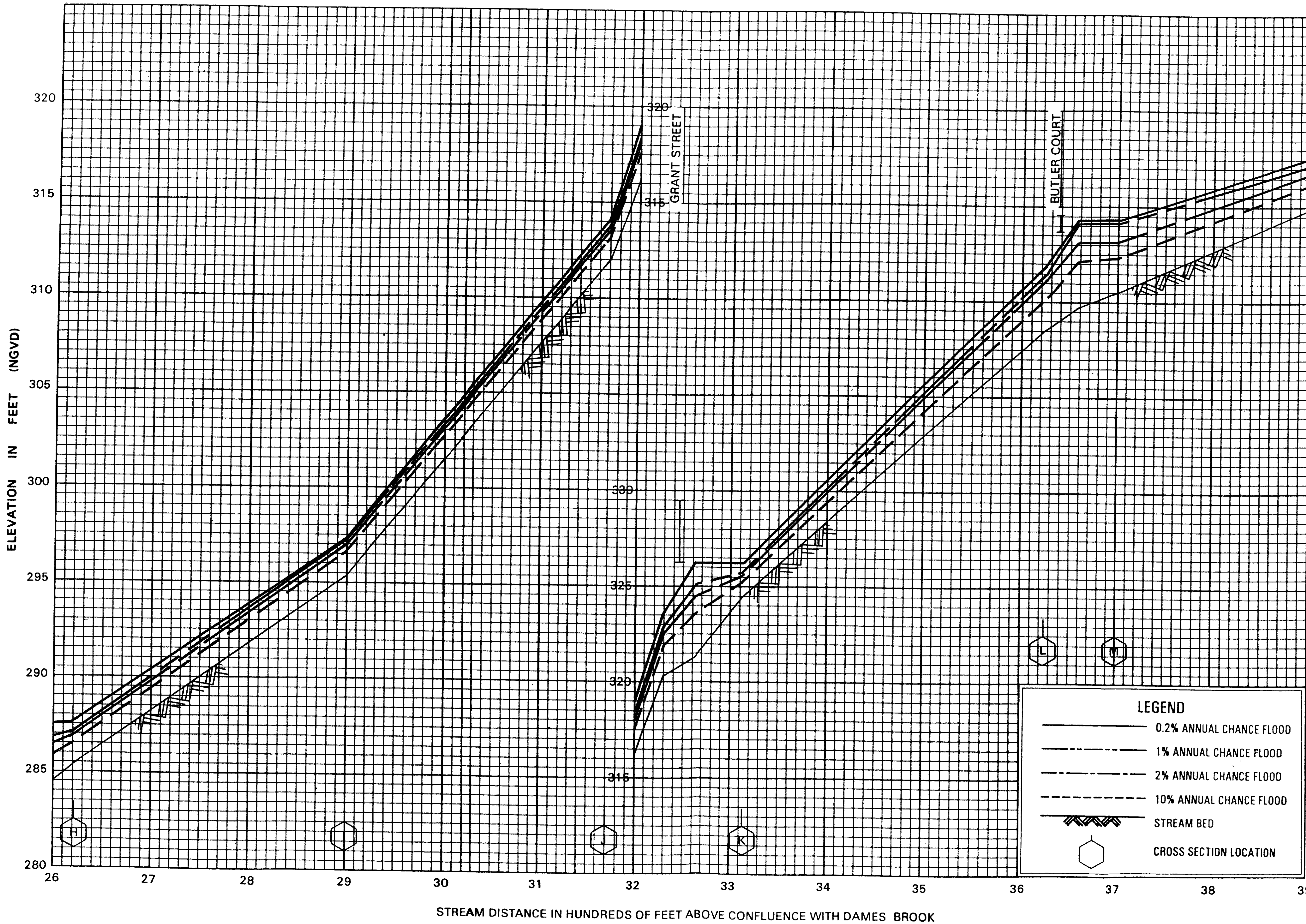
FLOOD PROFILES

KICKING HORSE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

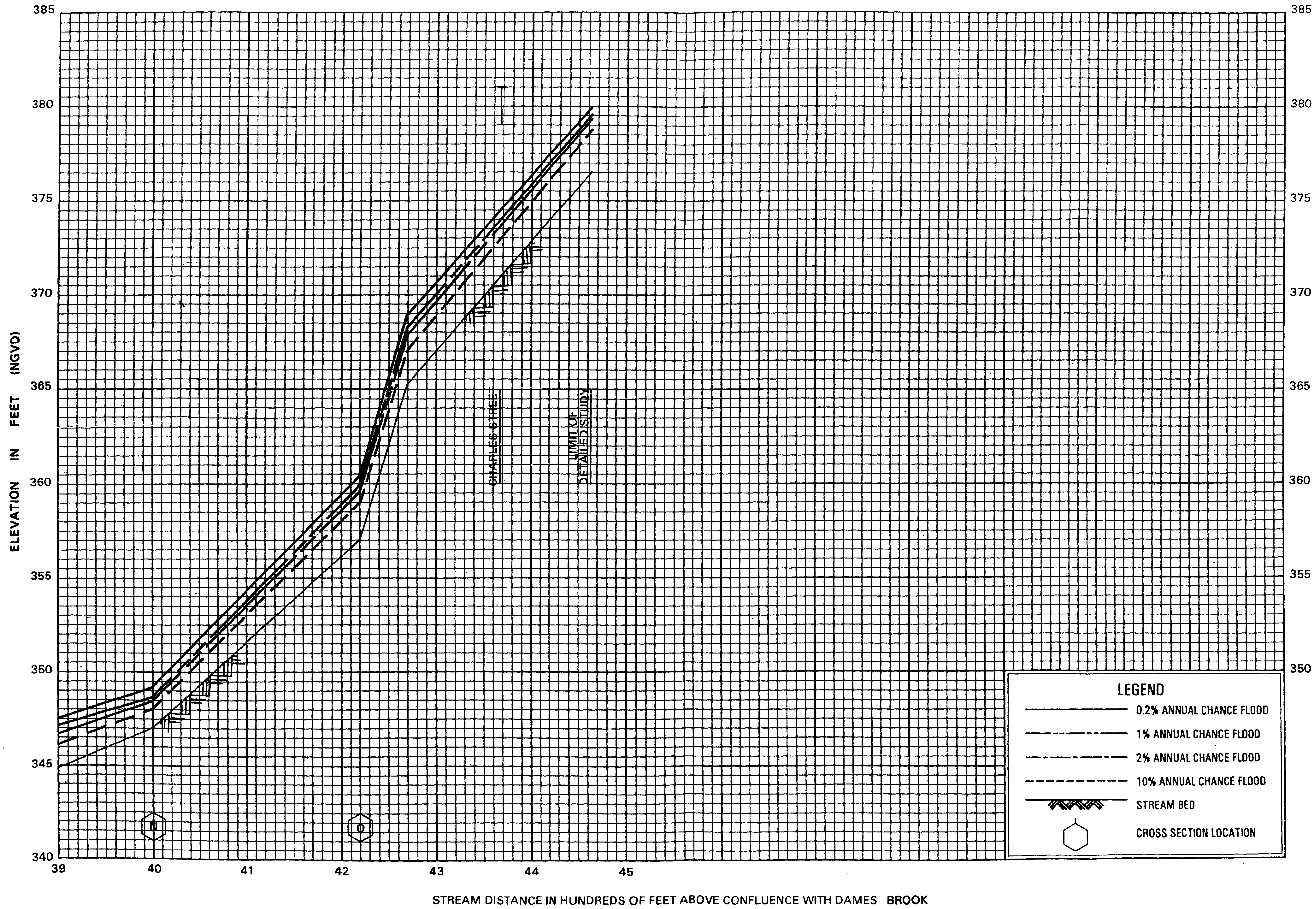


FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOOD PROFILES

KICKING HORSE BROOK



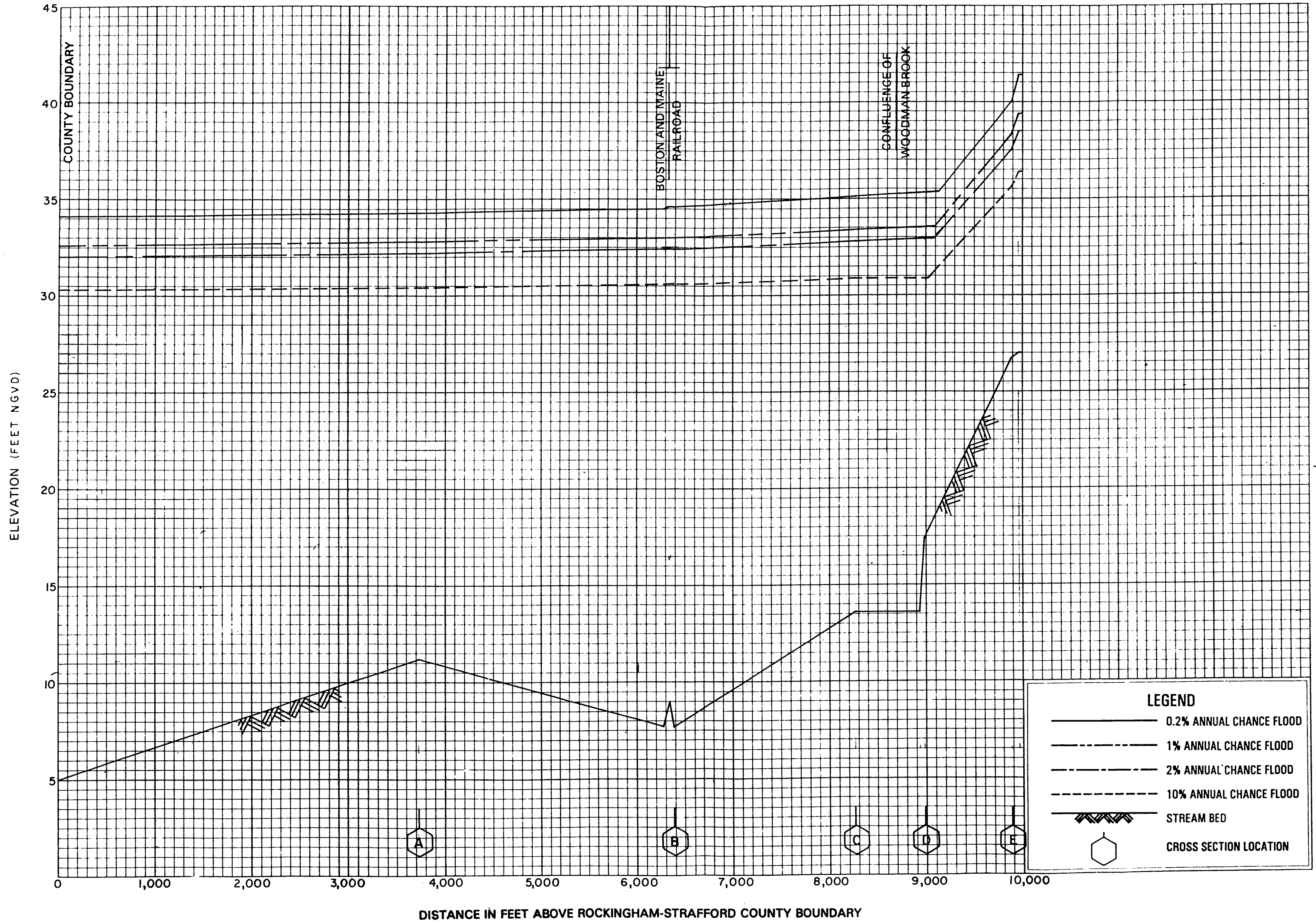
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOOD PROFILES

KICKING HORSE BROOK



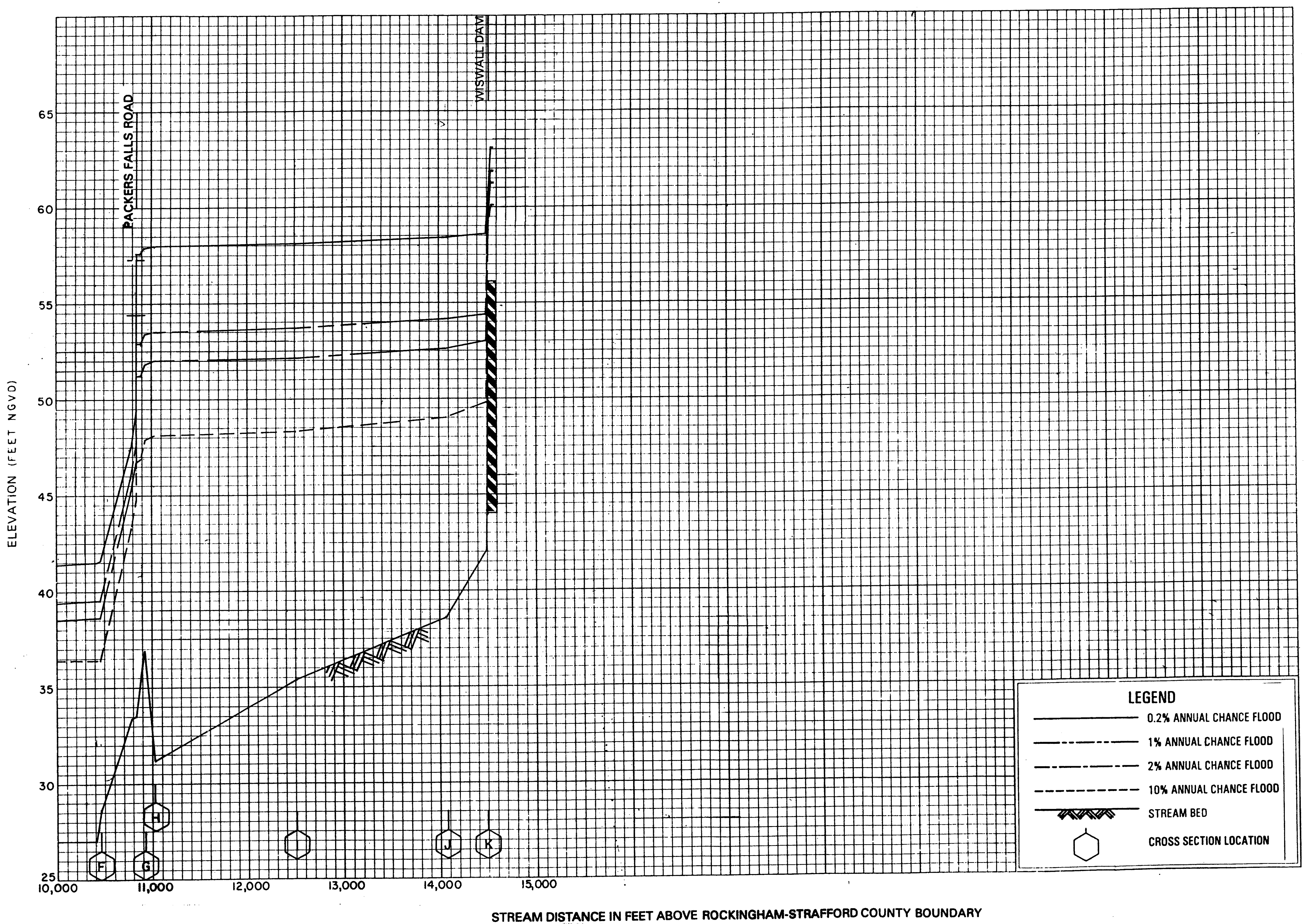
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



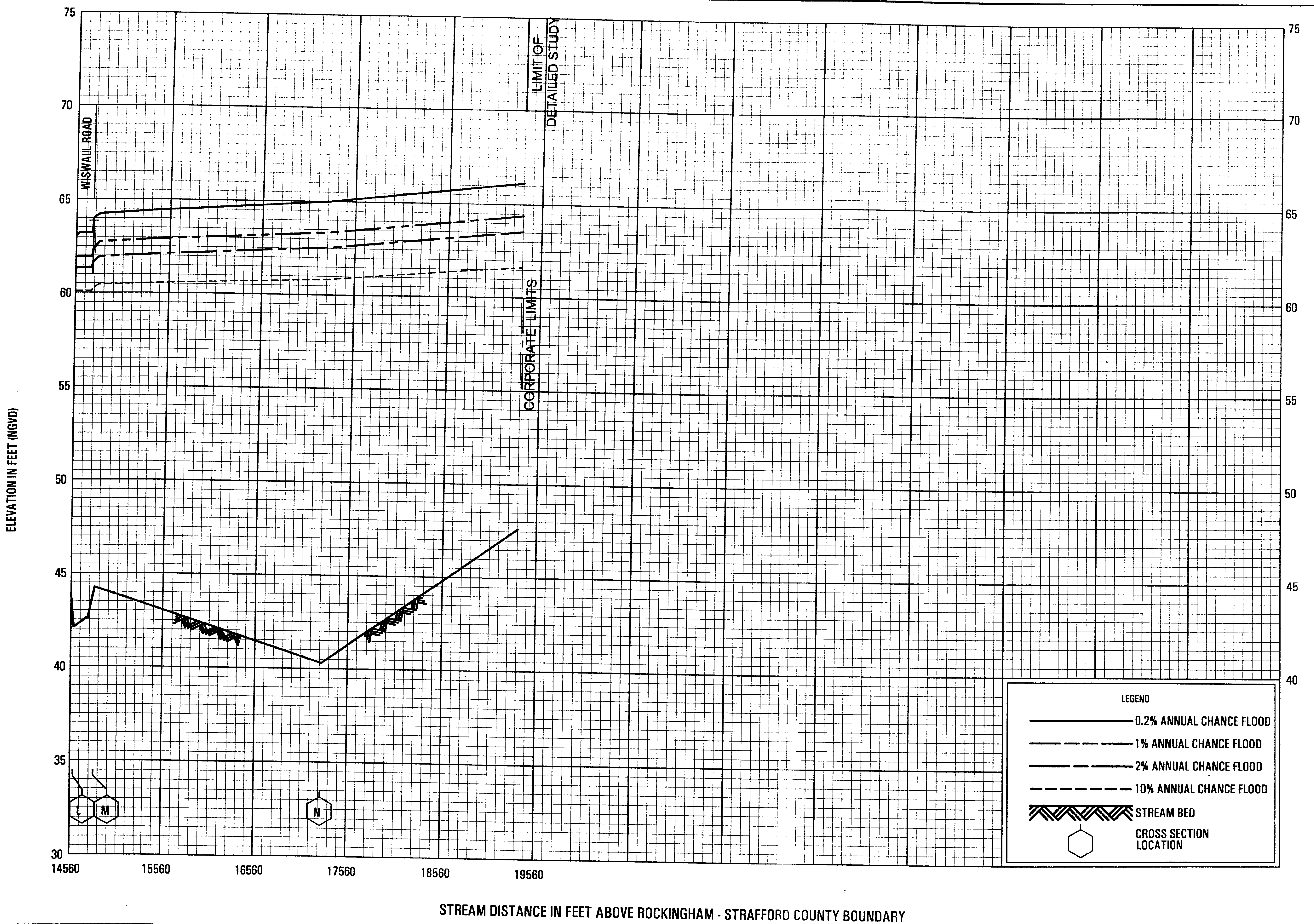
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



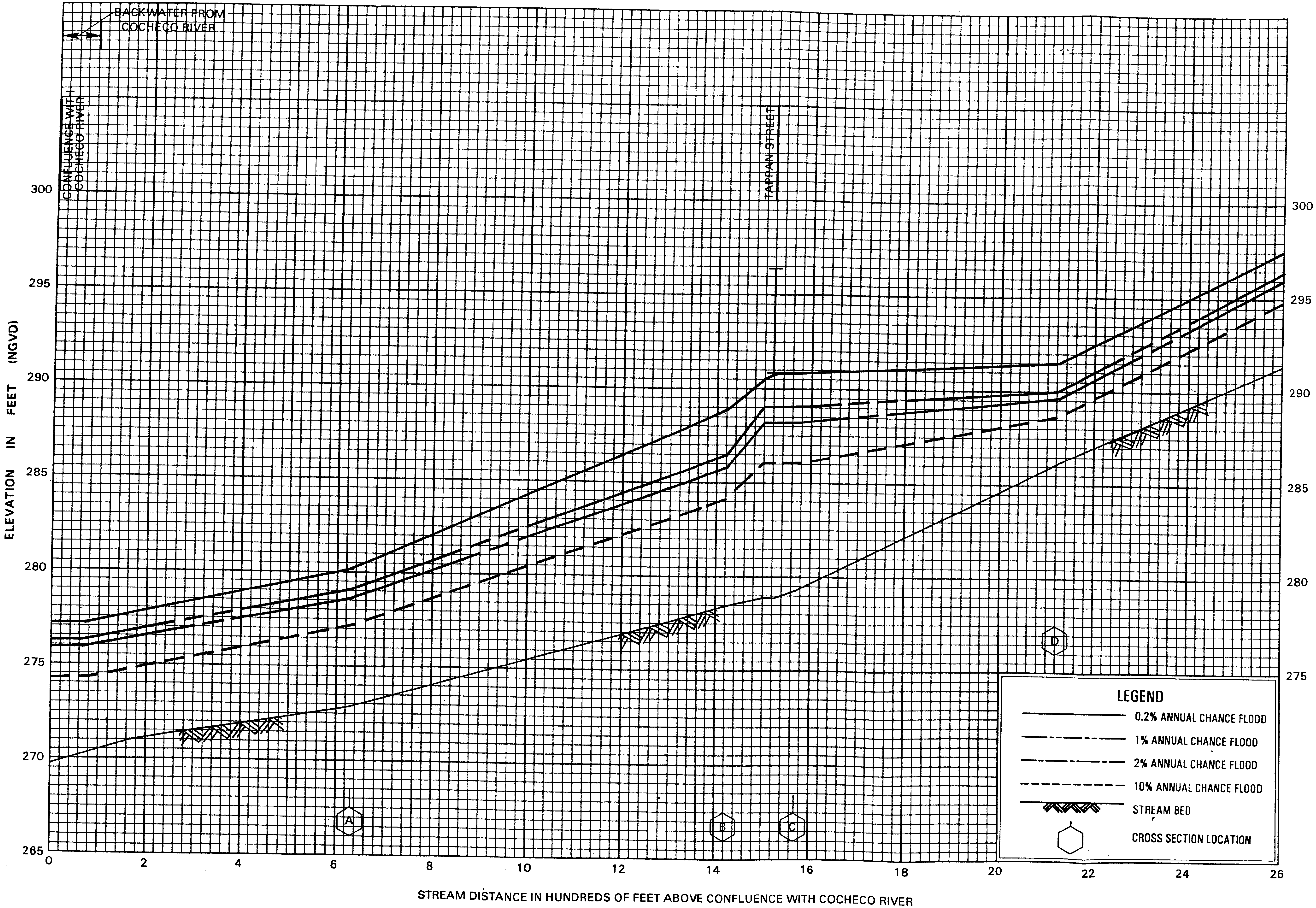
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



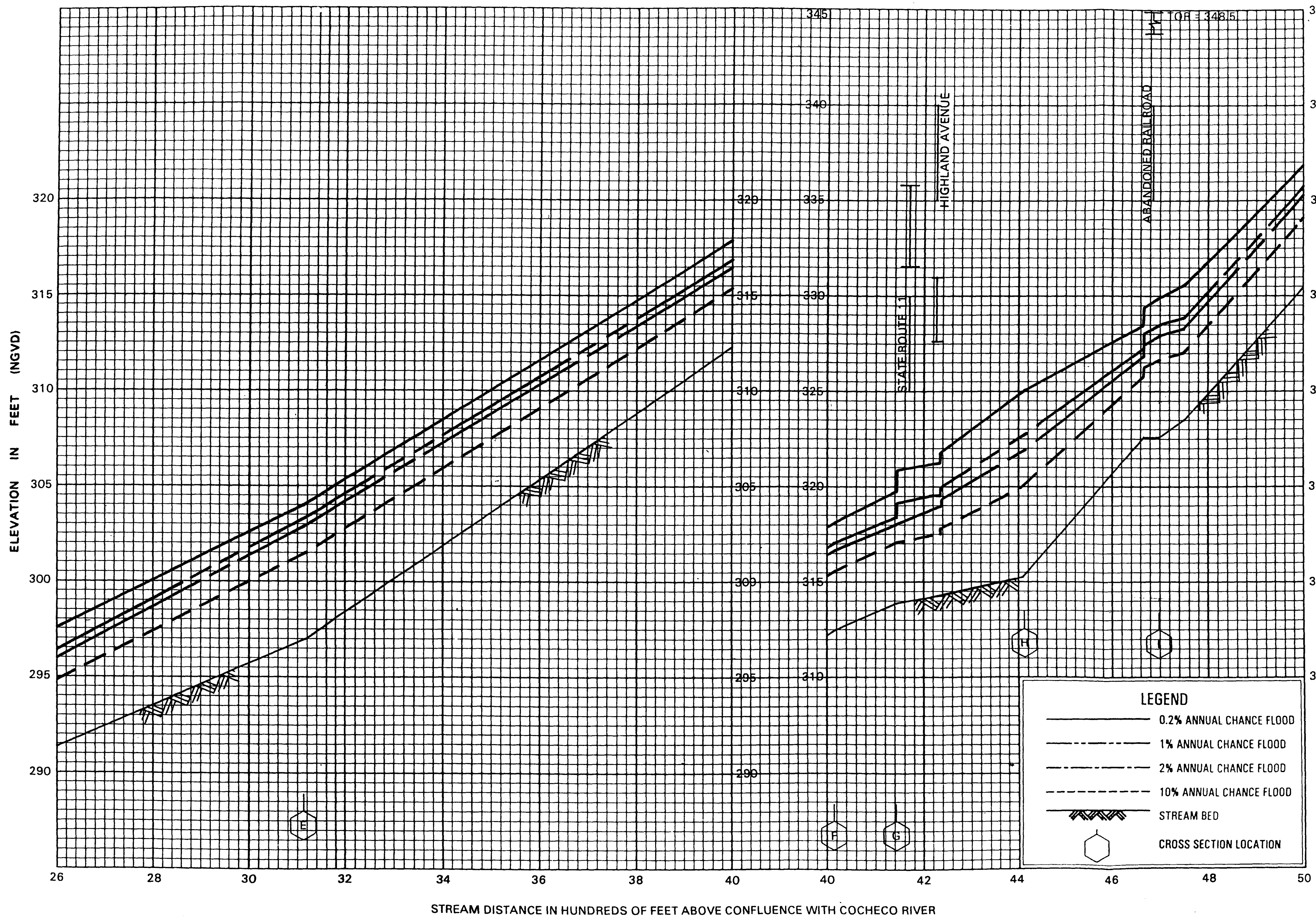
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOOD PROFILES

MAD RIVER



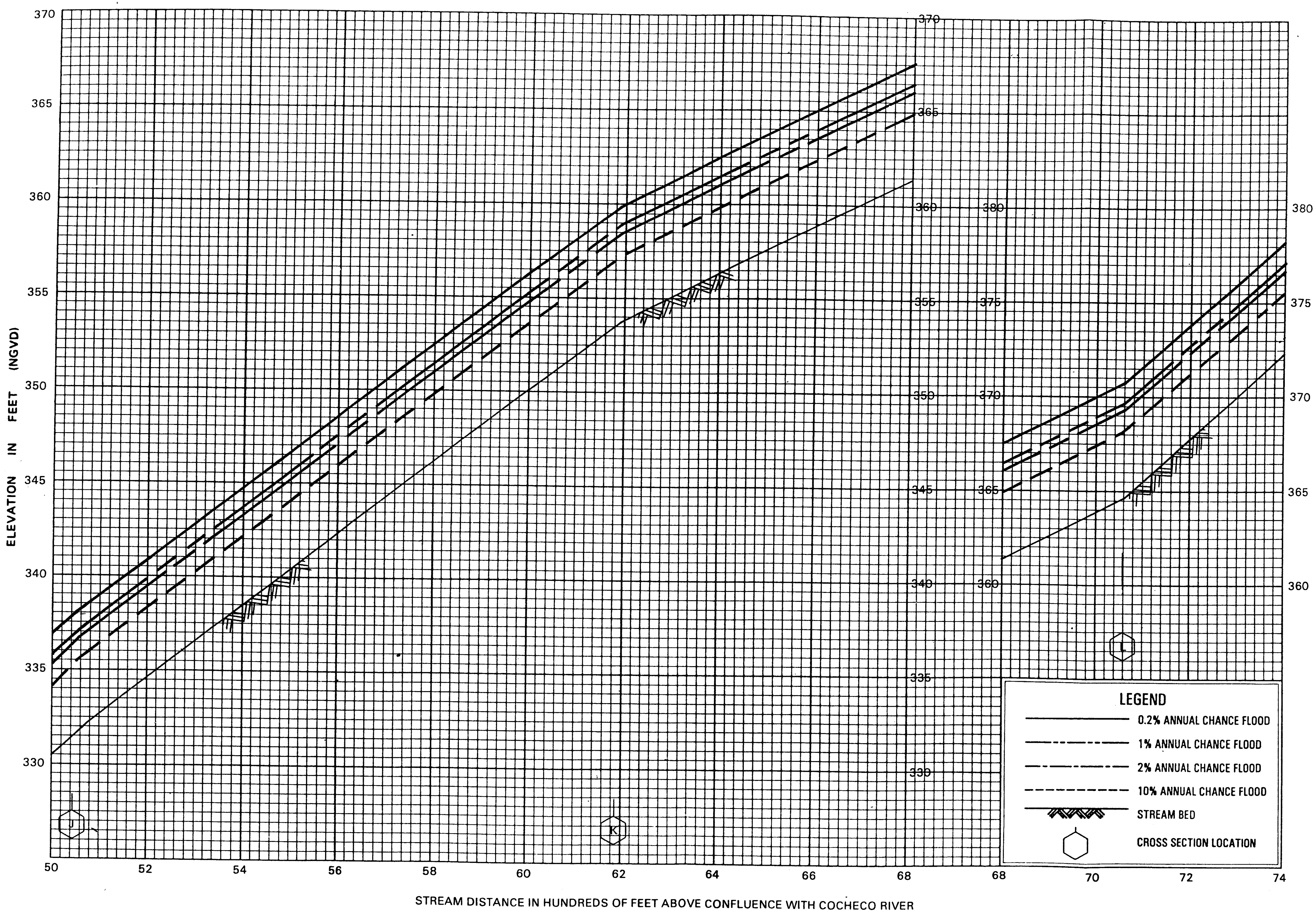
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOOD PROFILES

MAD RIVER



FLOOD PROFILES

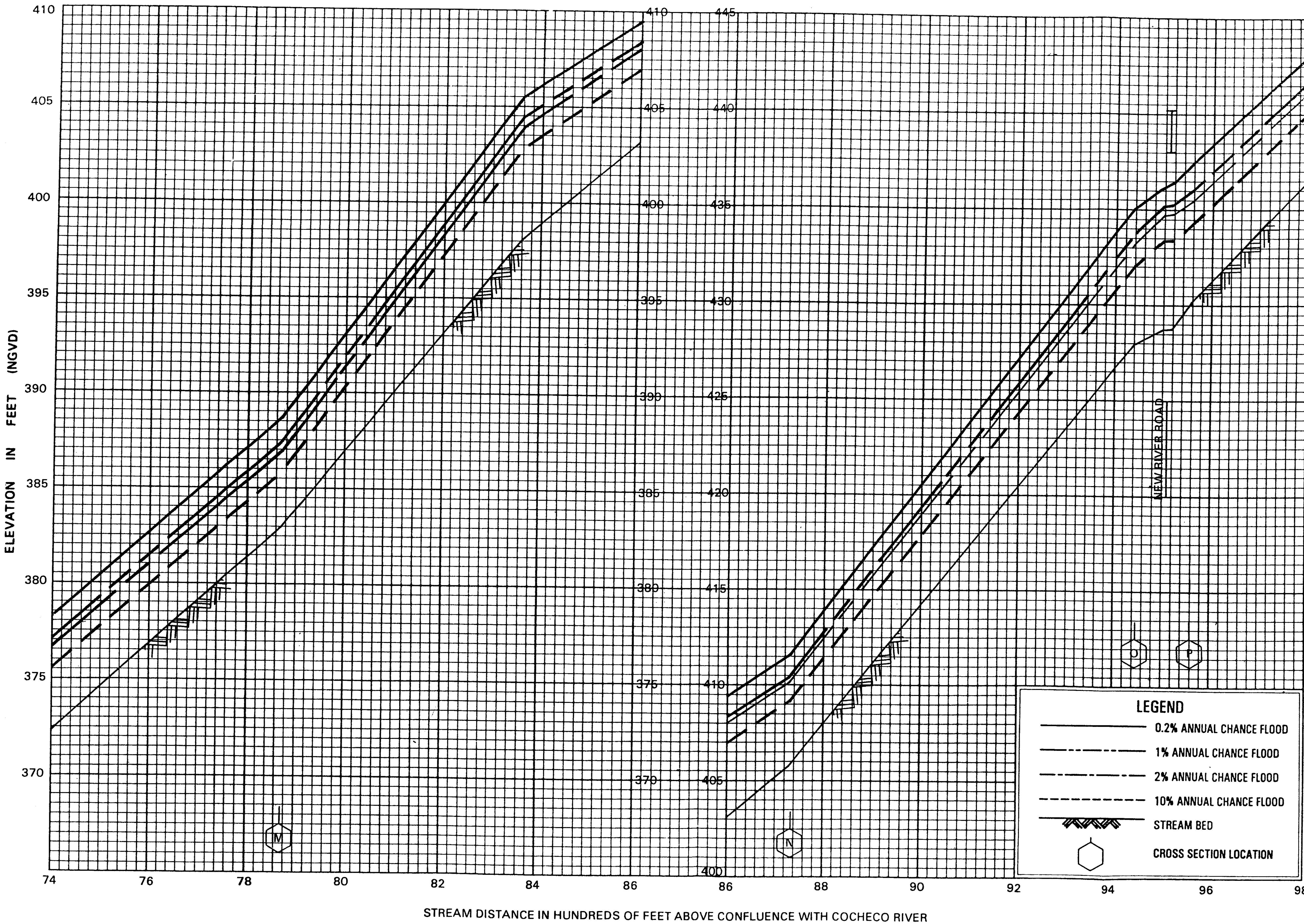
MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

39P



FLOOD PROFILES

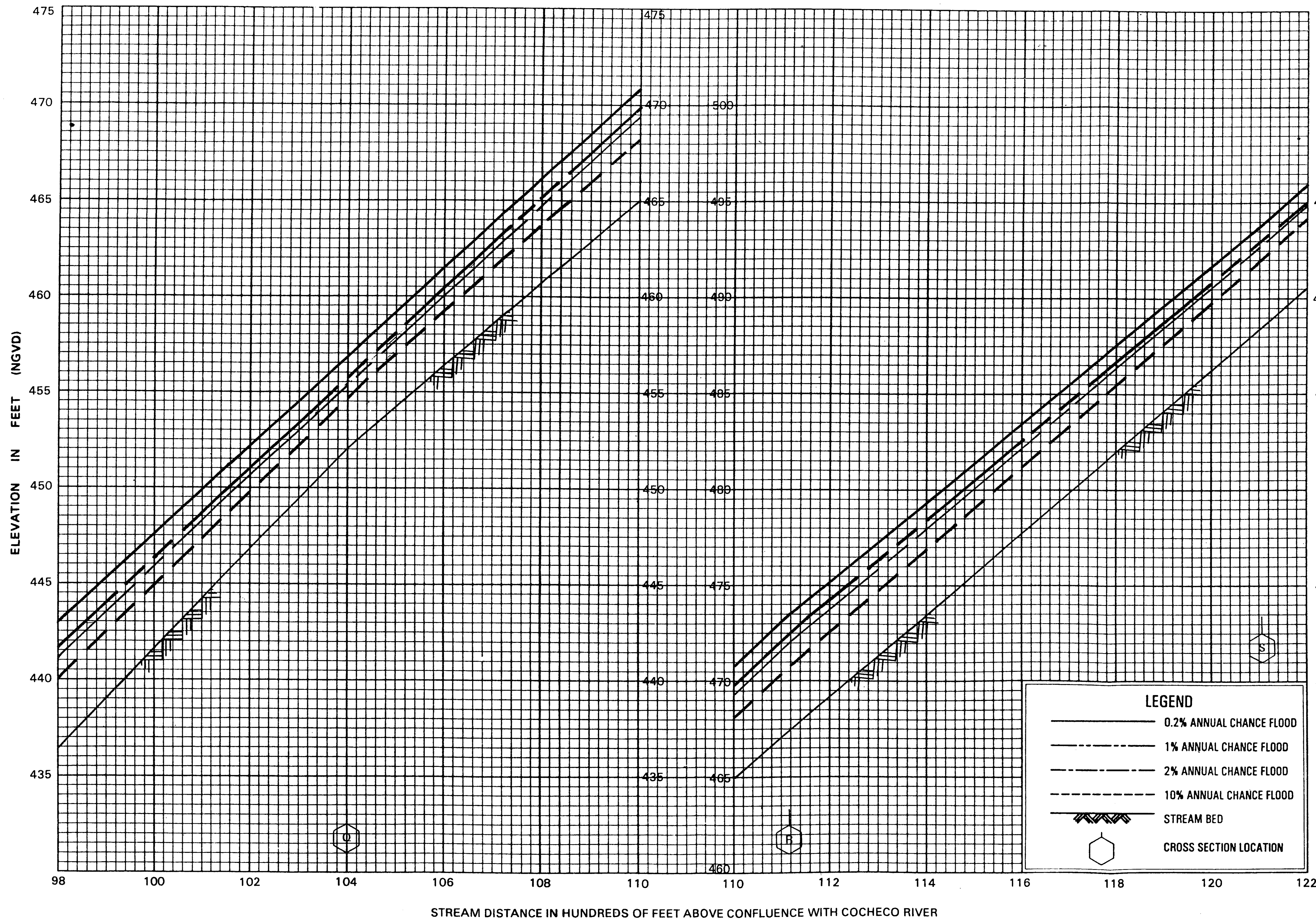
MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

40P



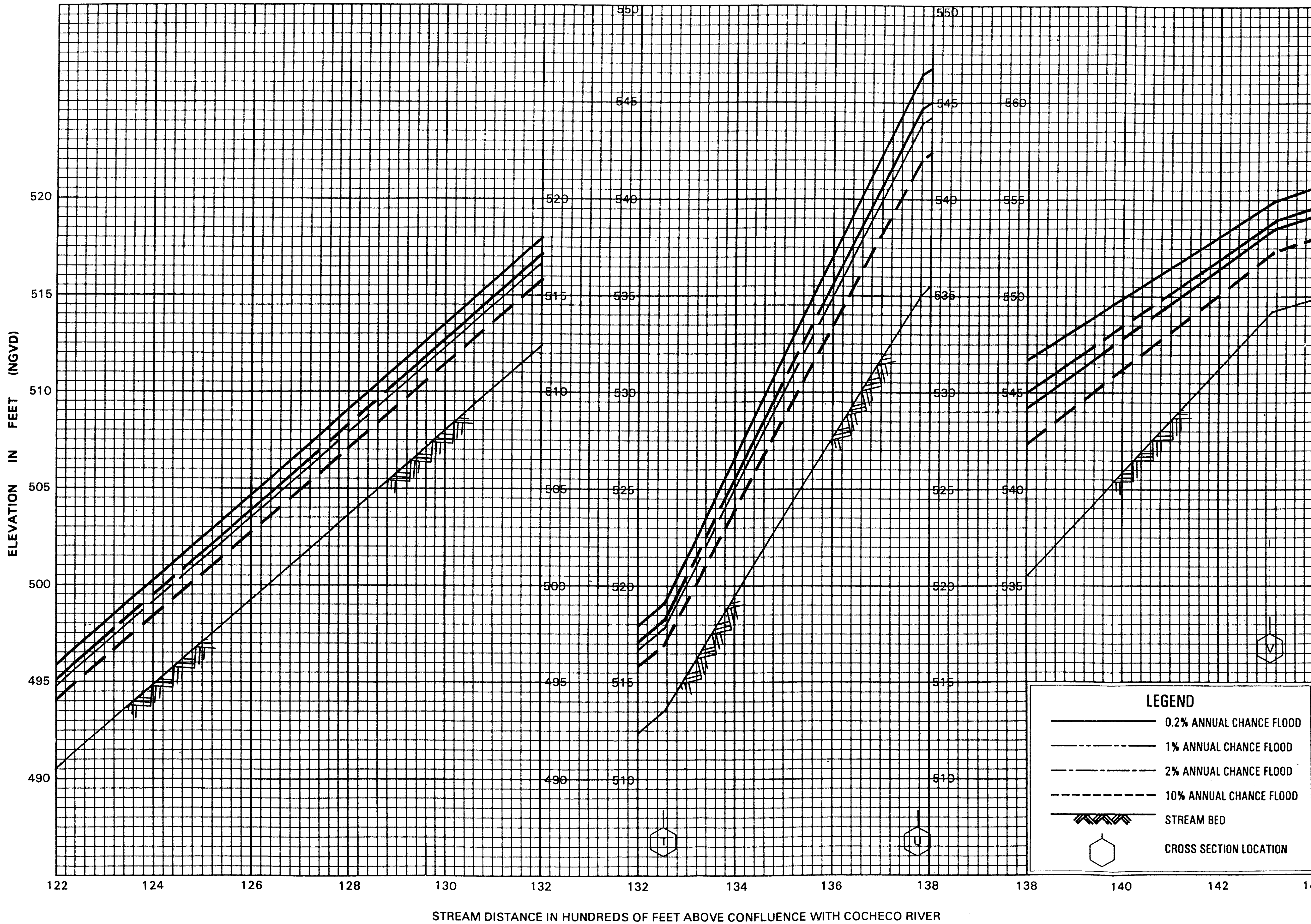
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



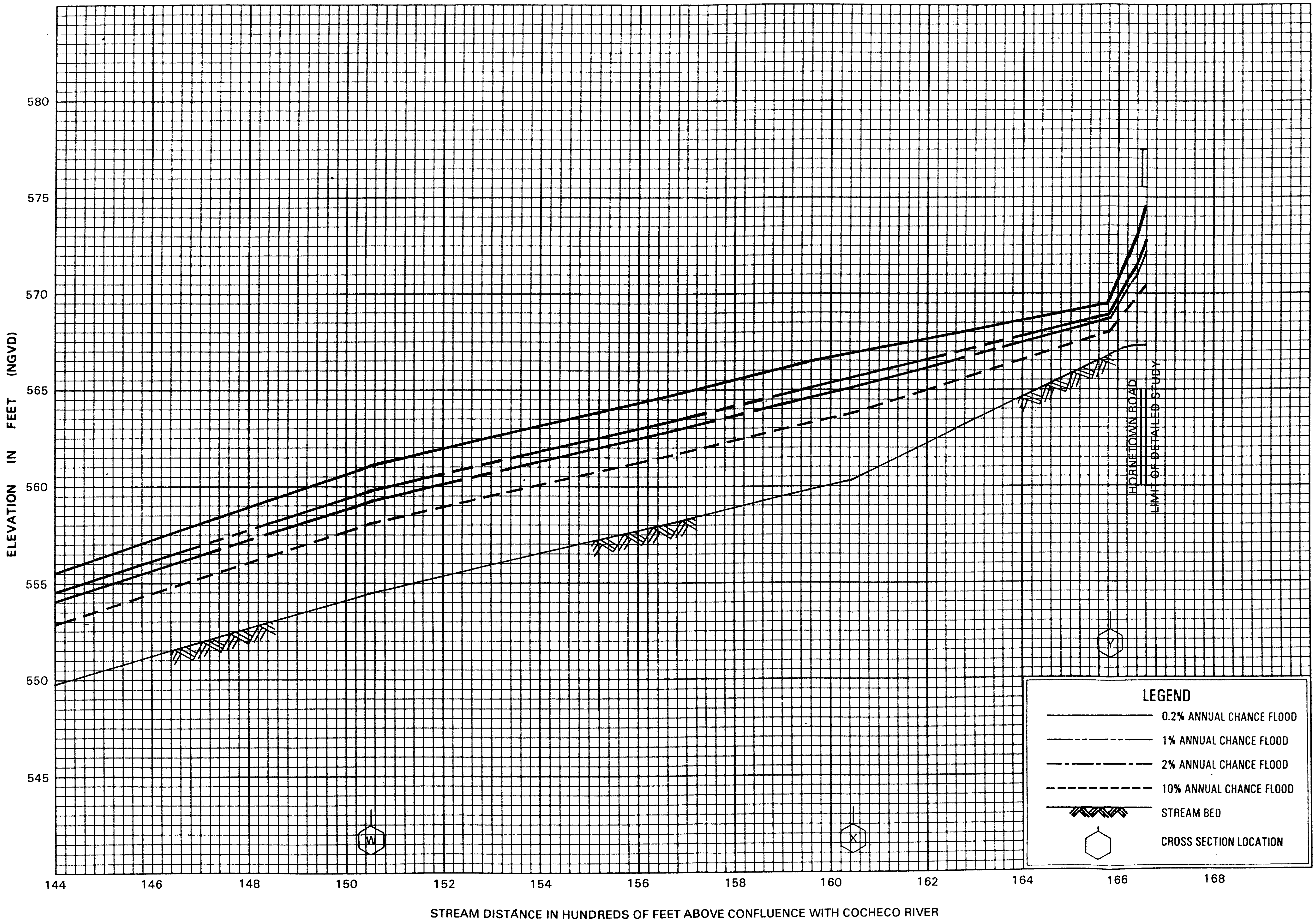
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOOD PROFILES

MAD RIVER

42P



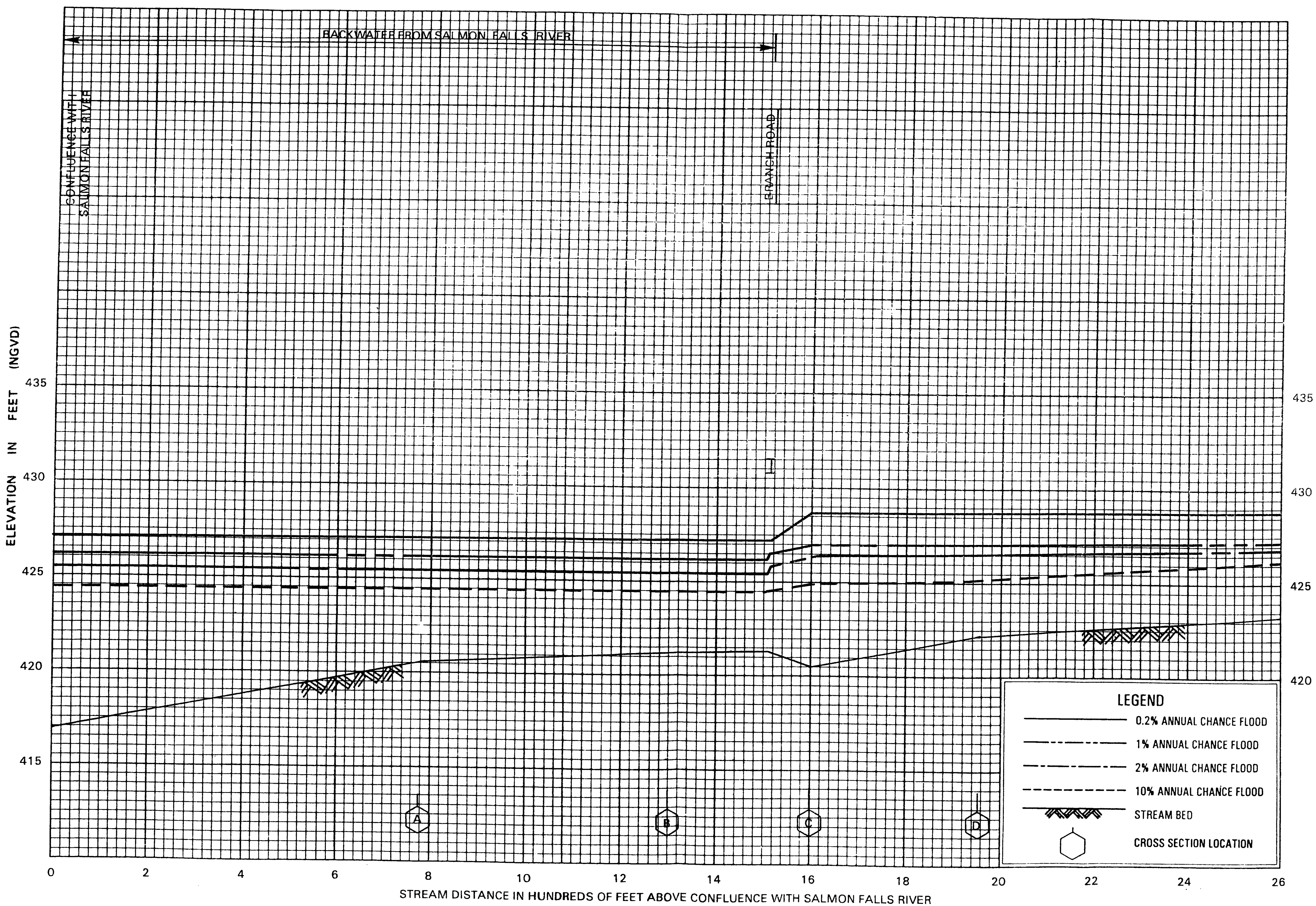
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



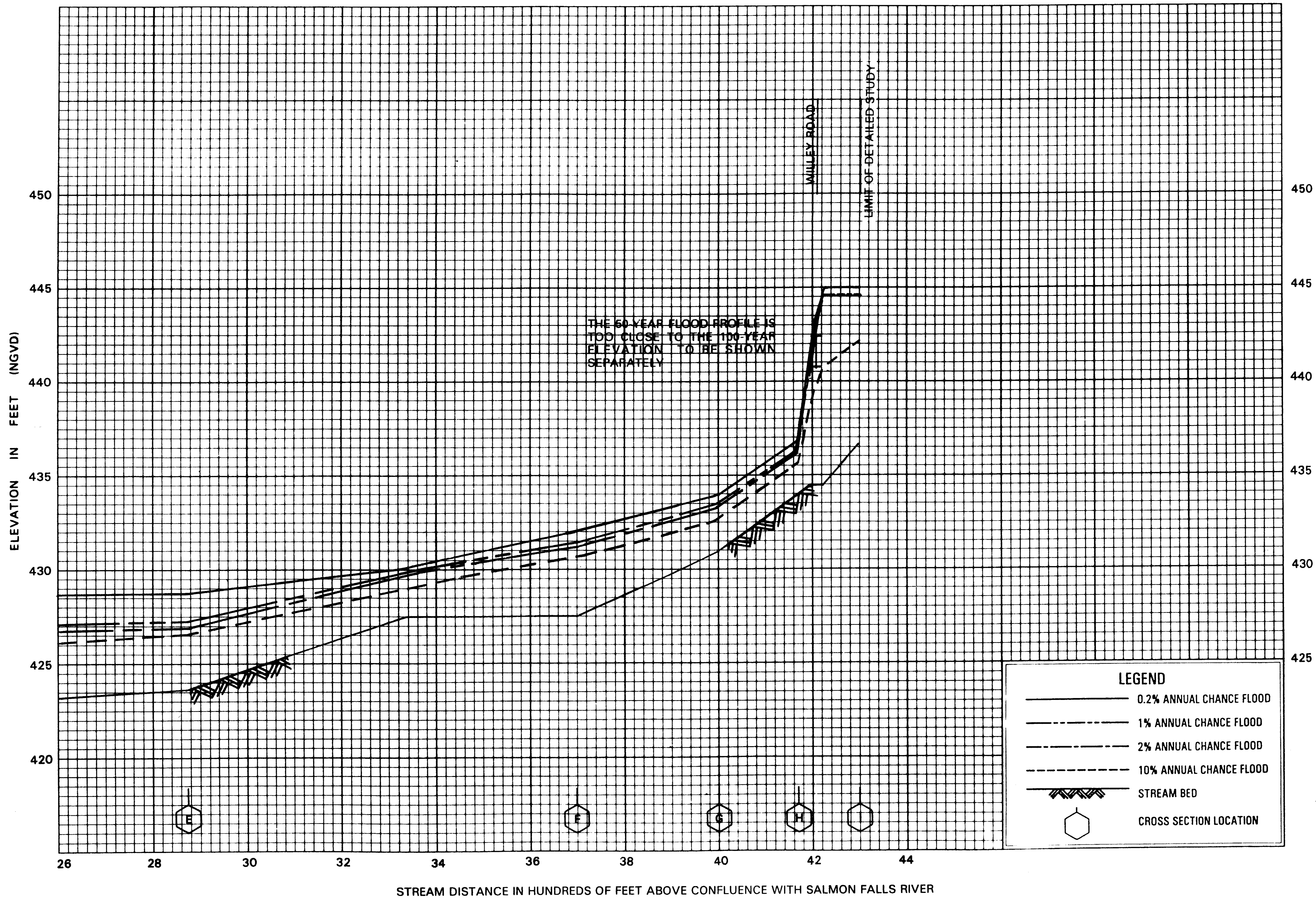
FLOOD PROFILES

MILLER BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

44P



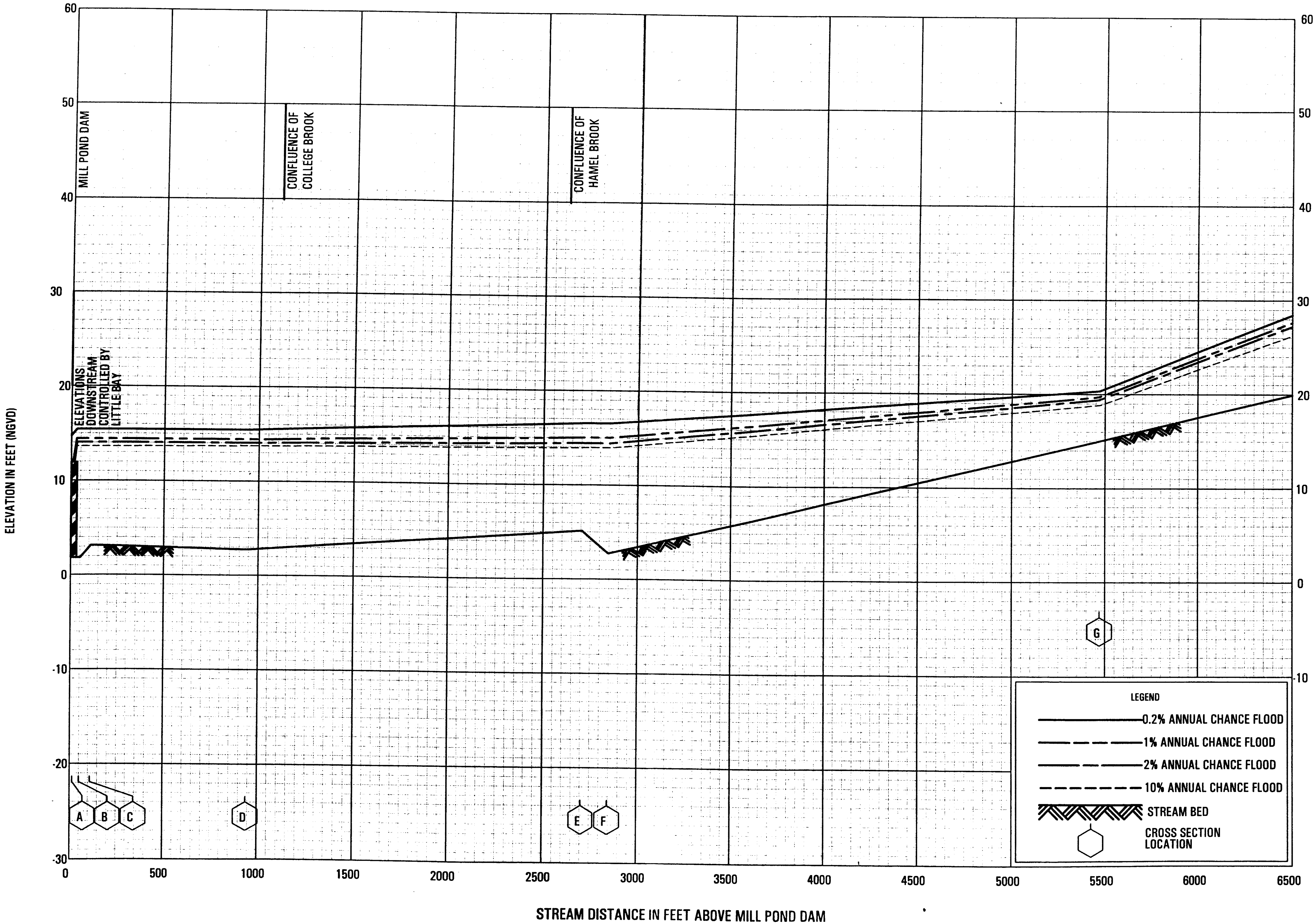
FLOOD PROFILES

MILLER BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



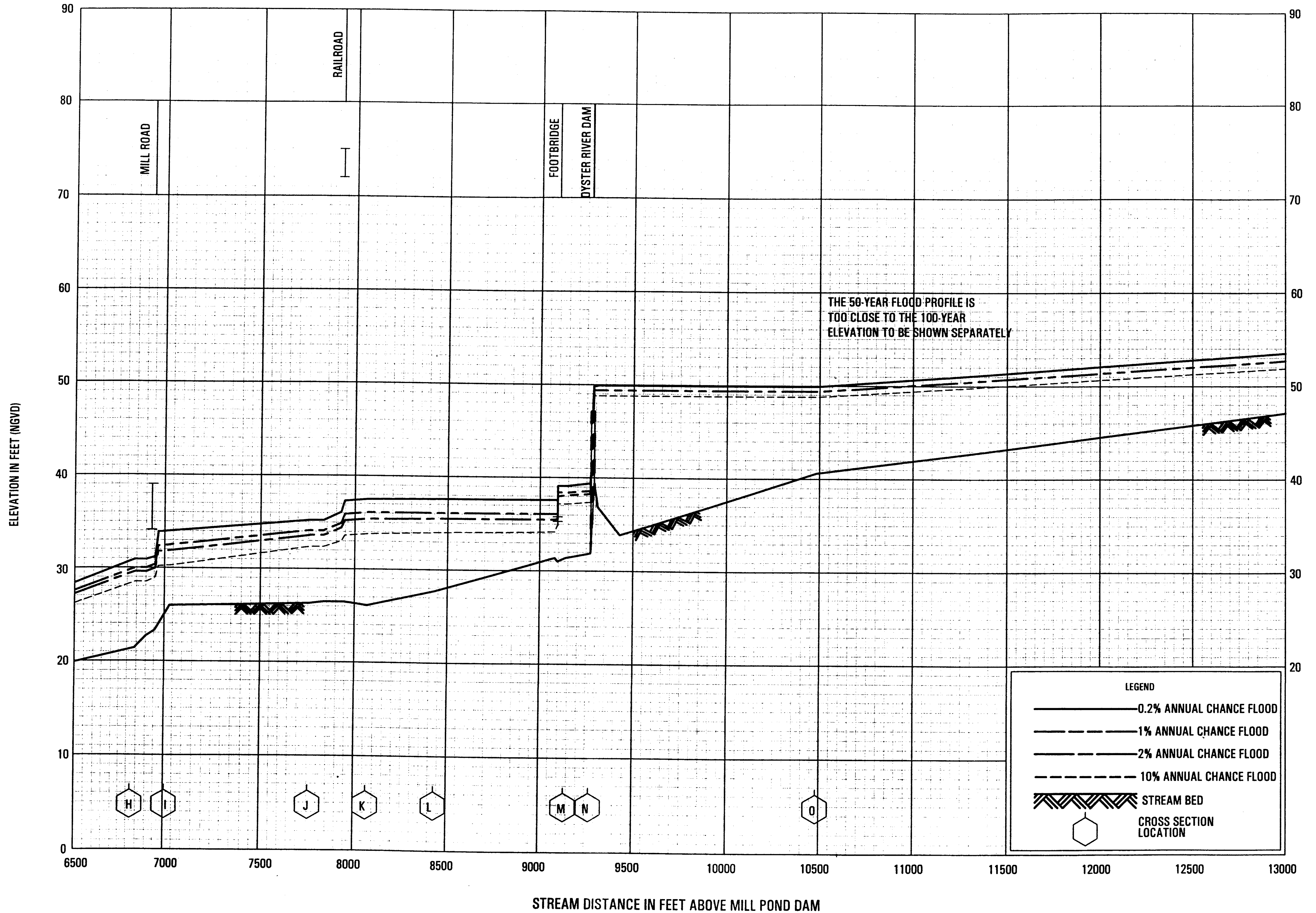
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



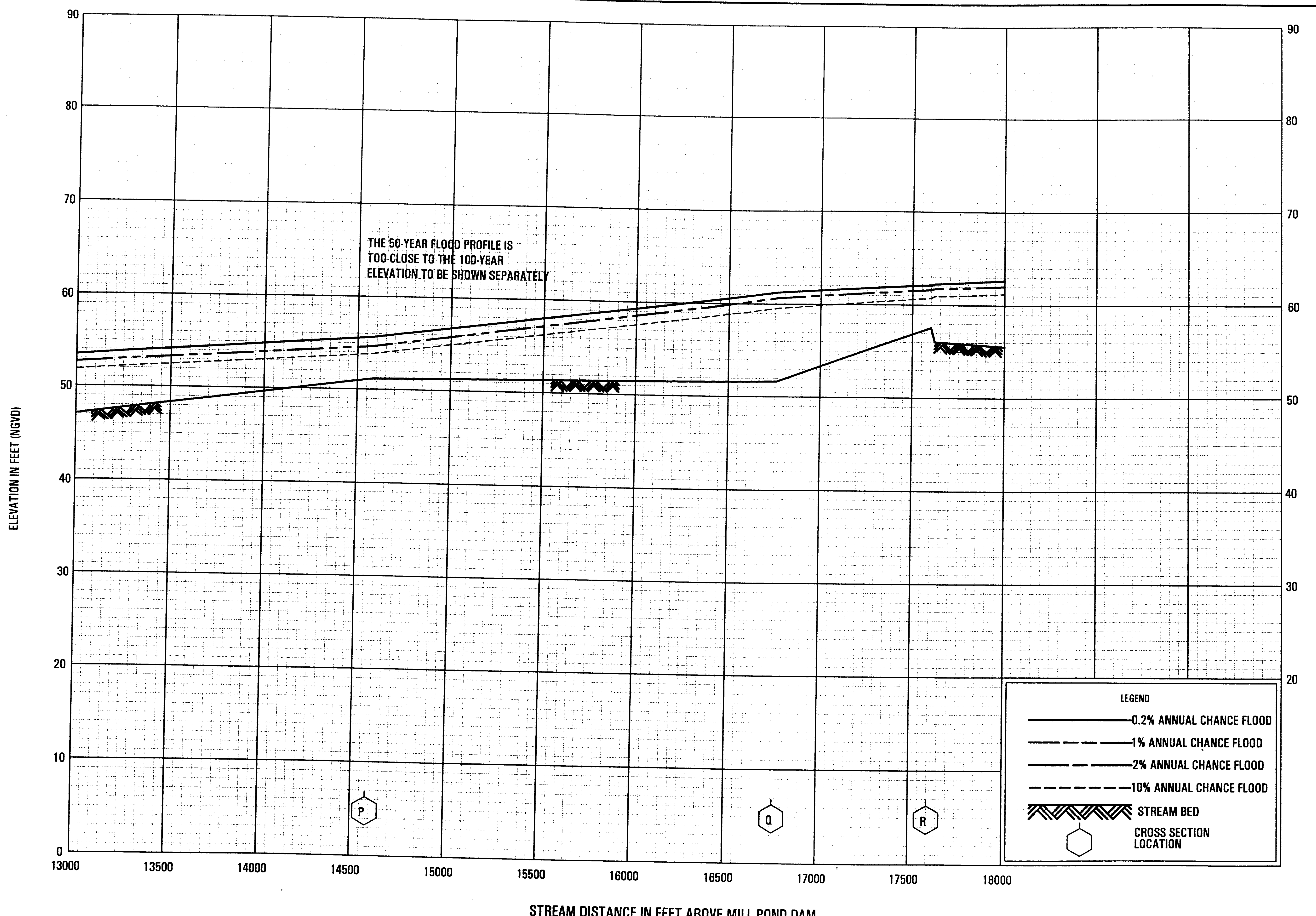
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

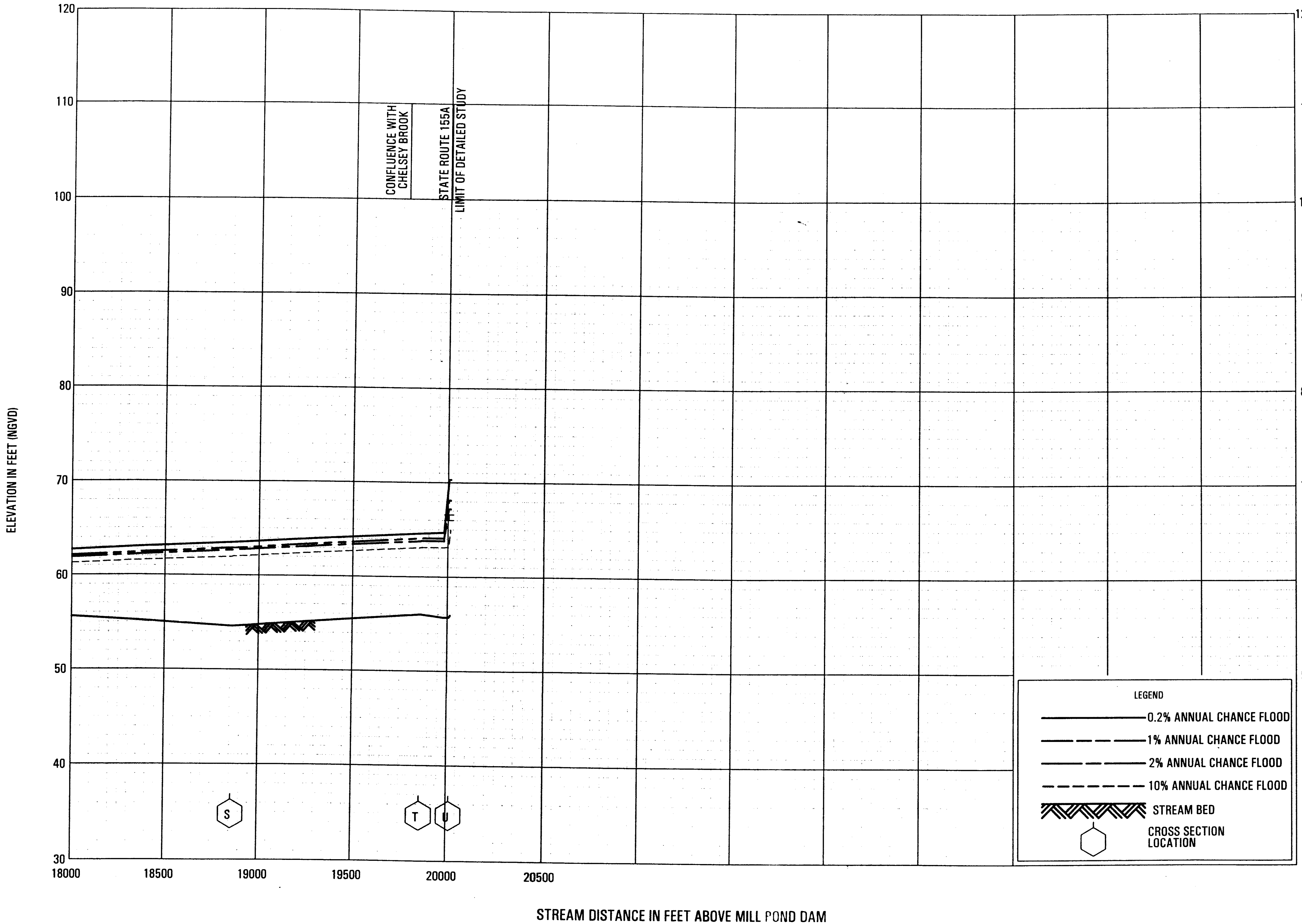
OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

48P



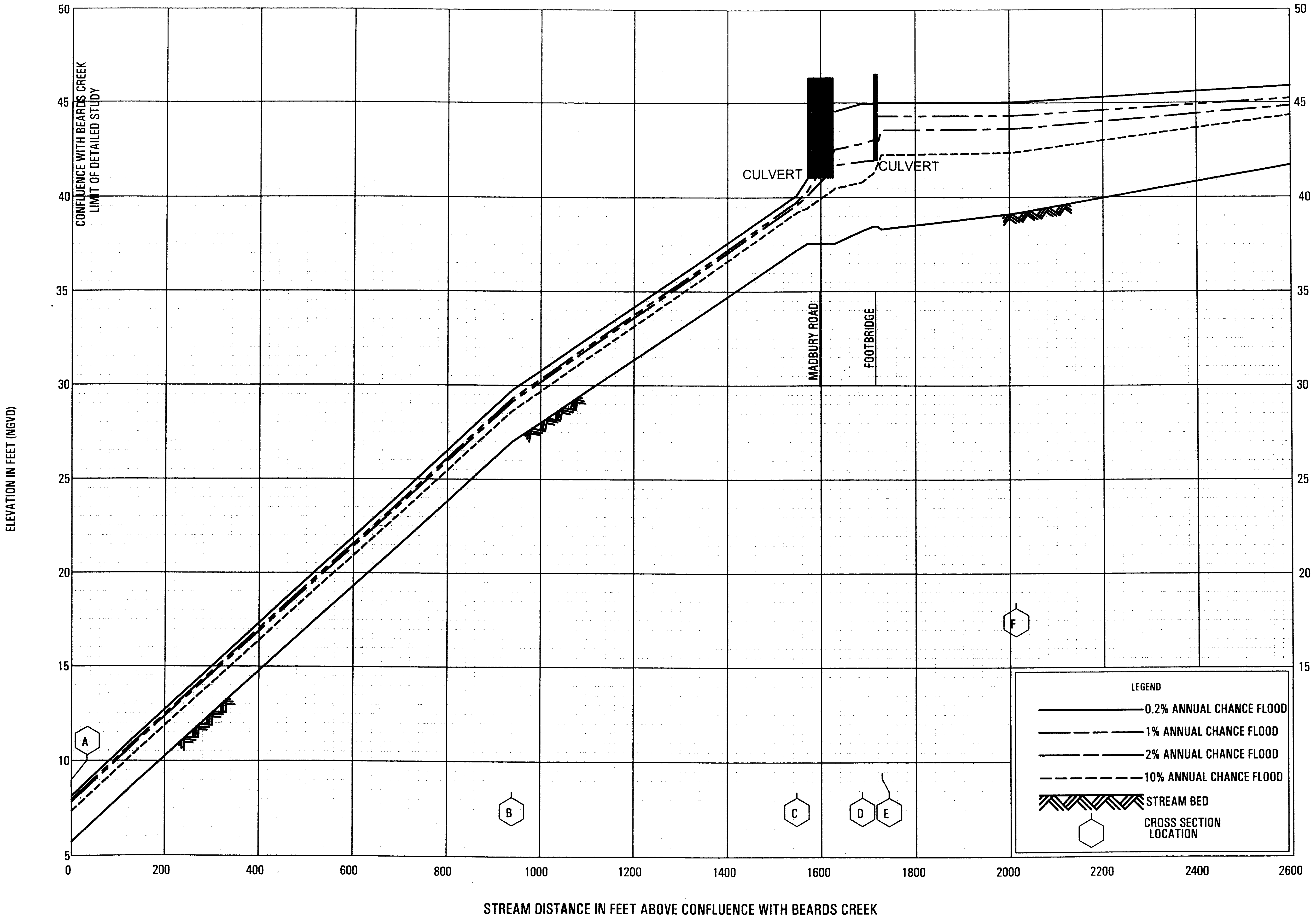
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



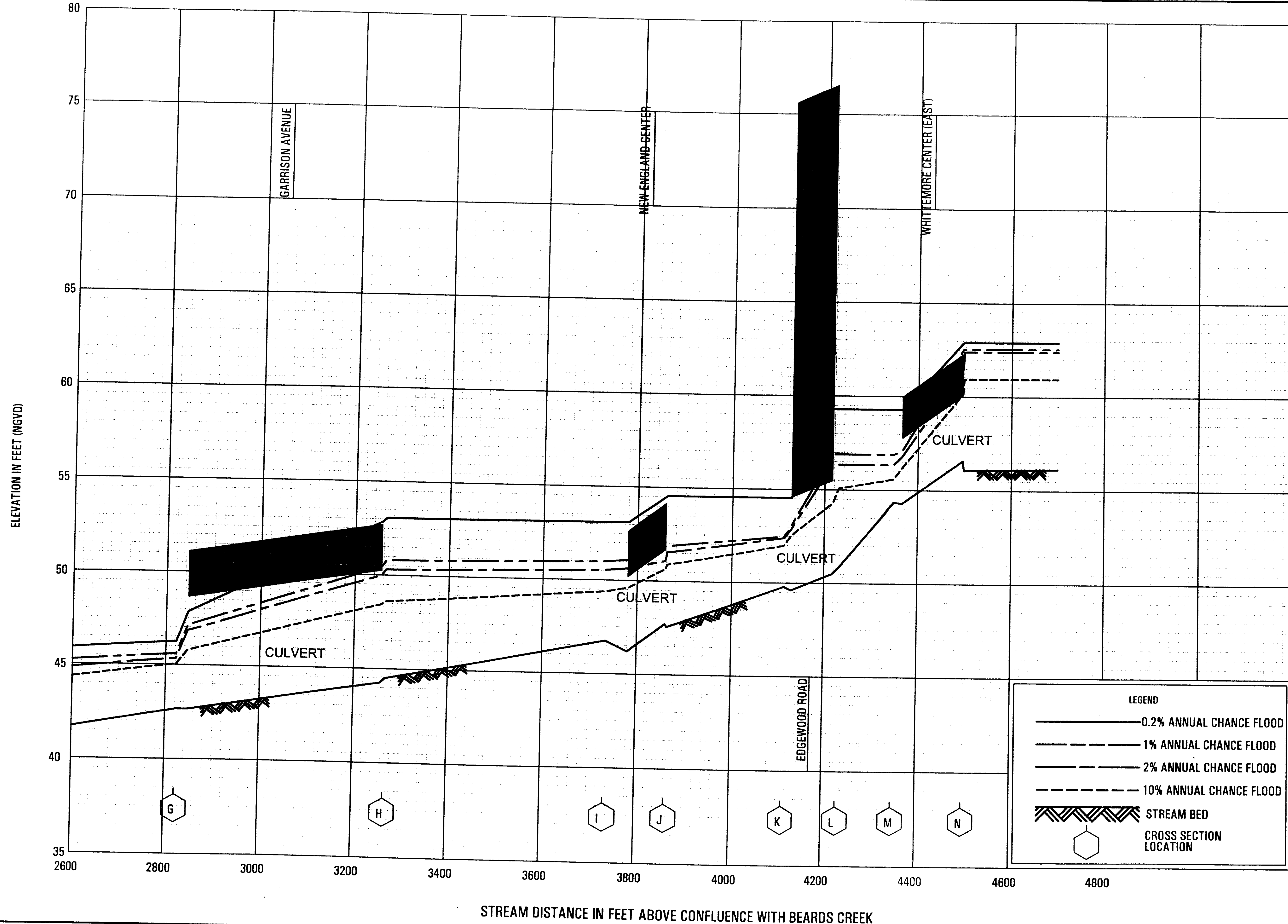
FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

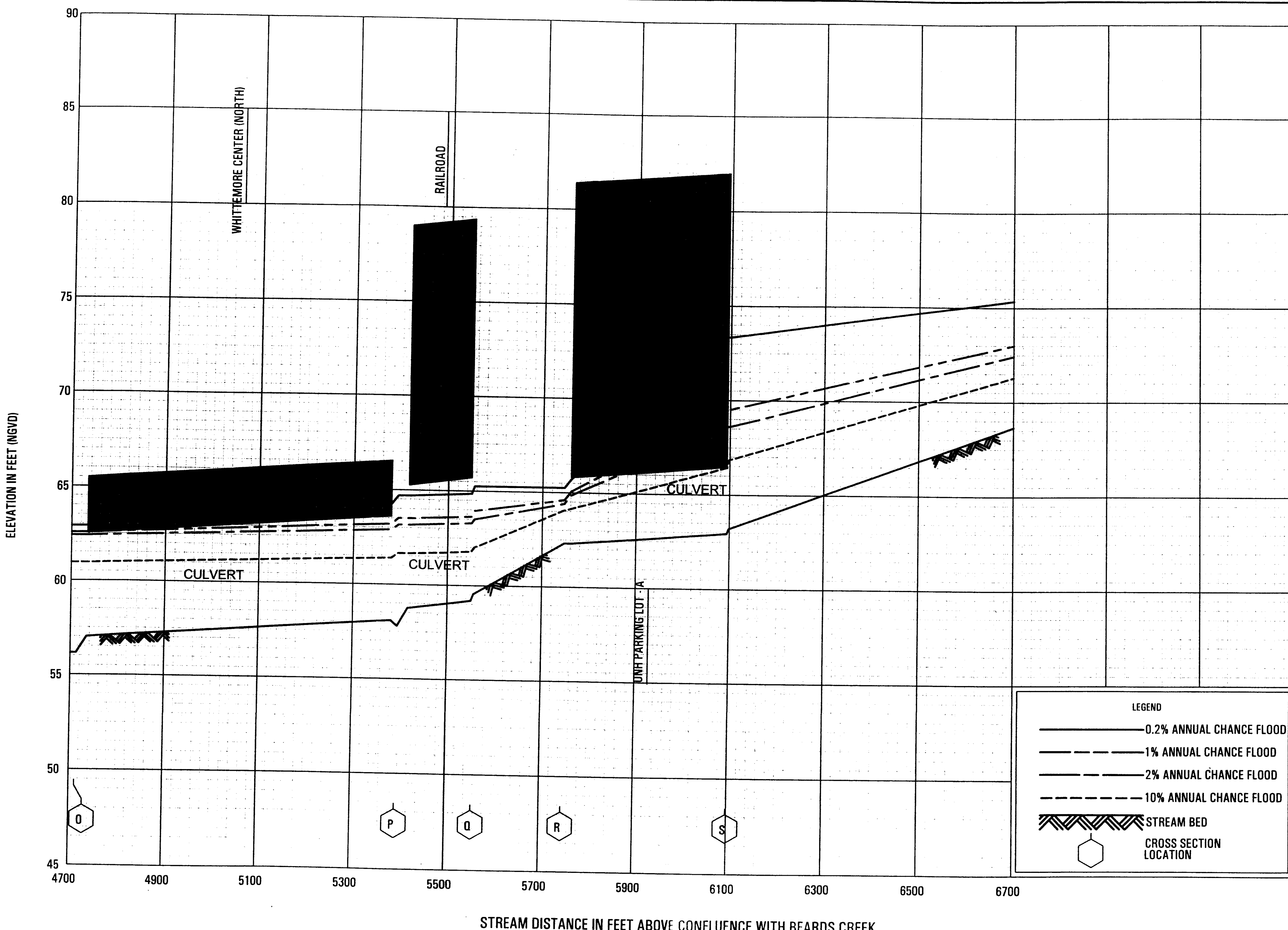
PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

51P



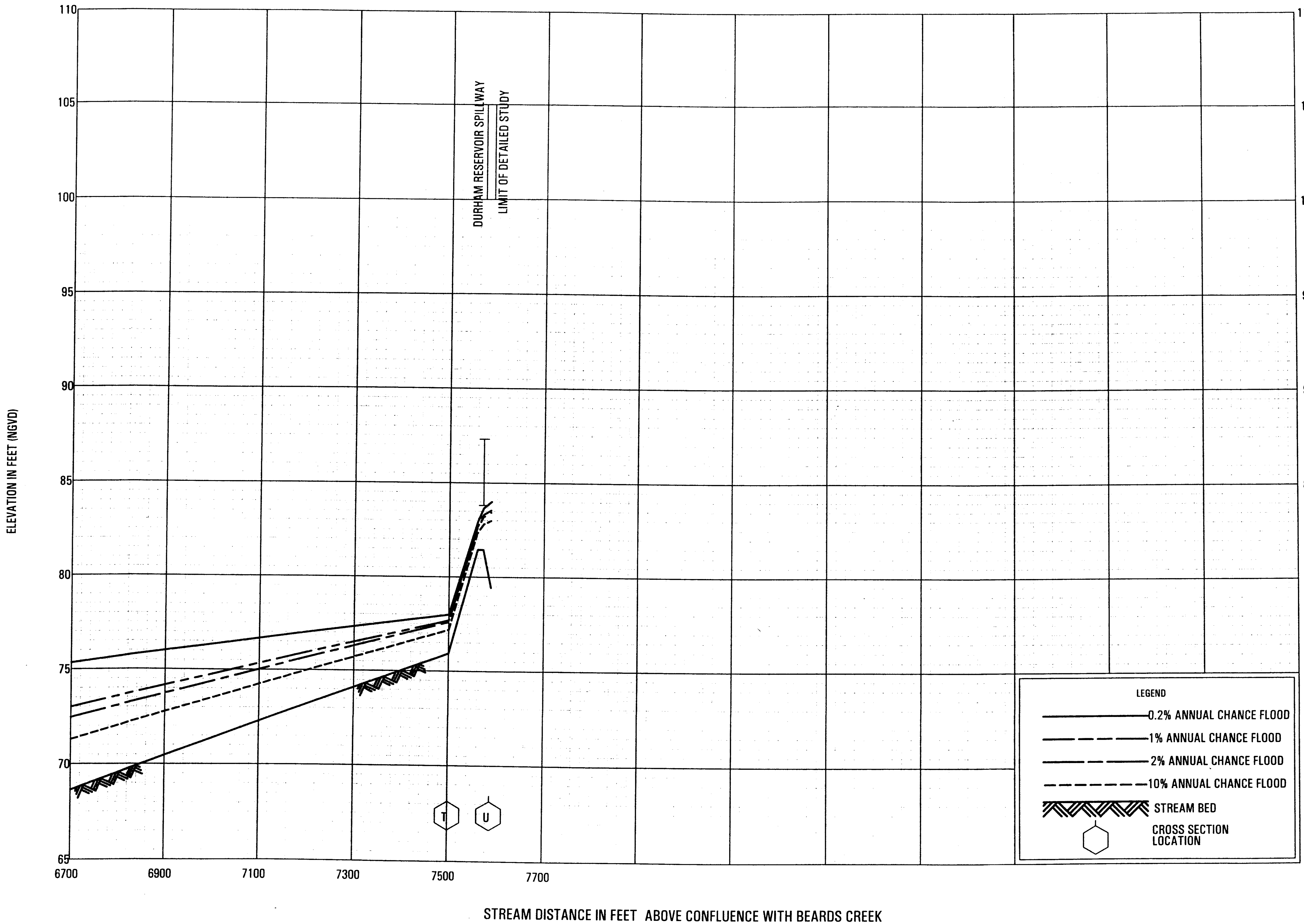
FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



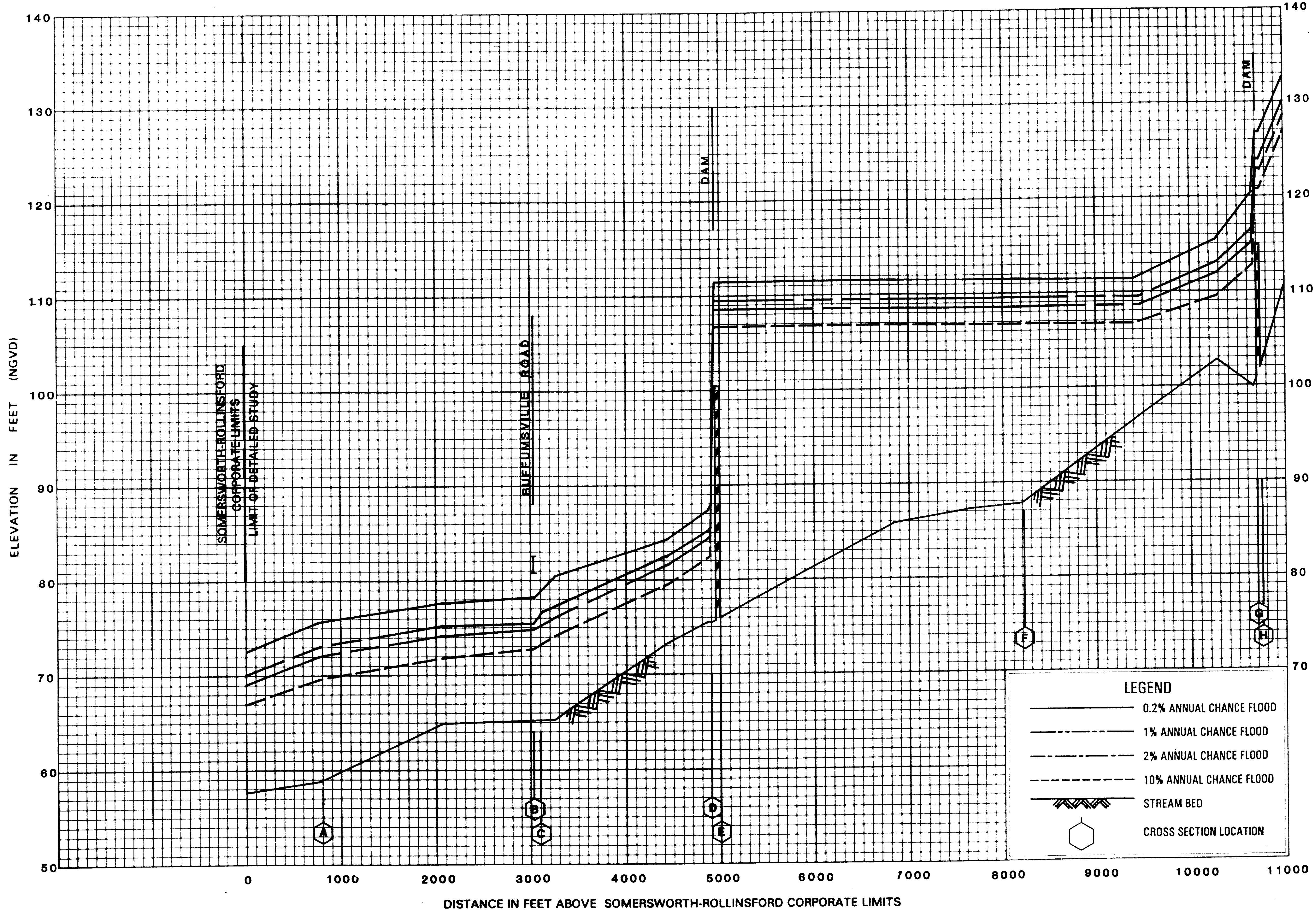
FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

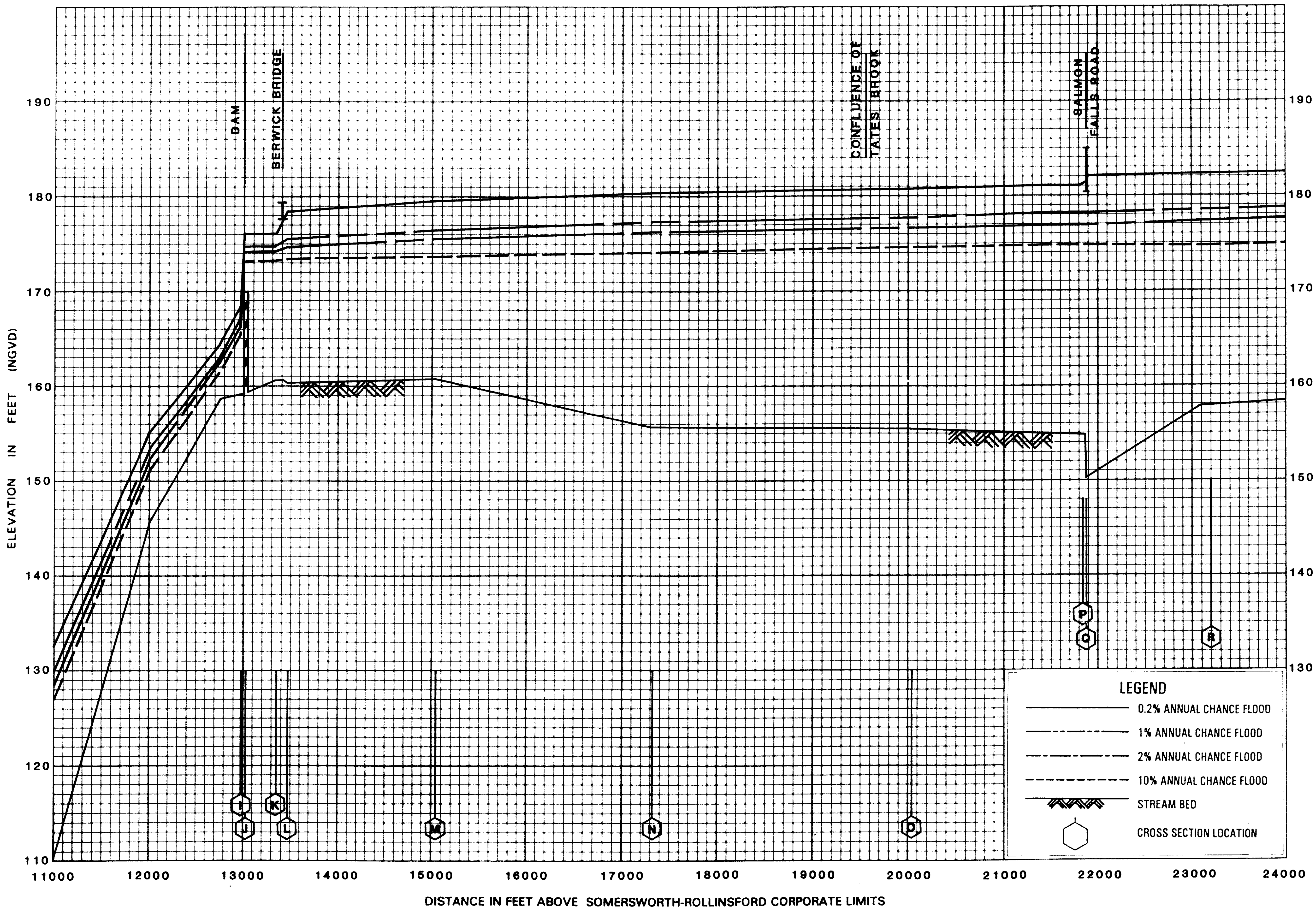
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

54P

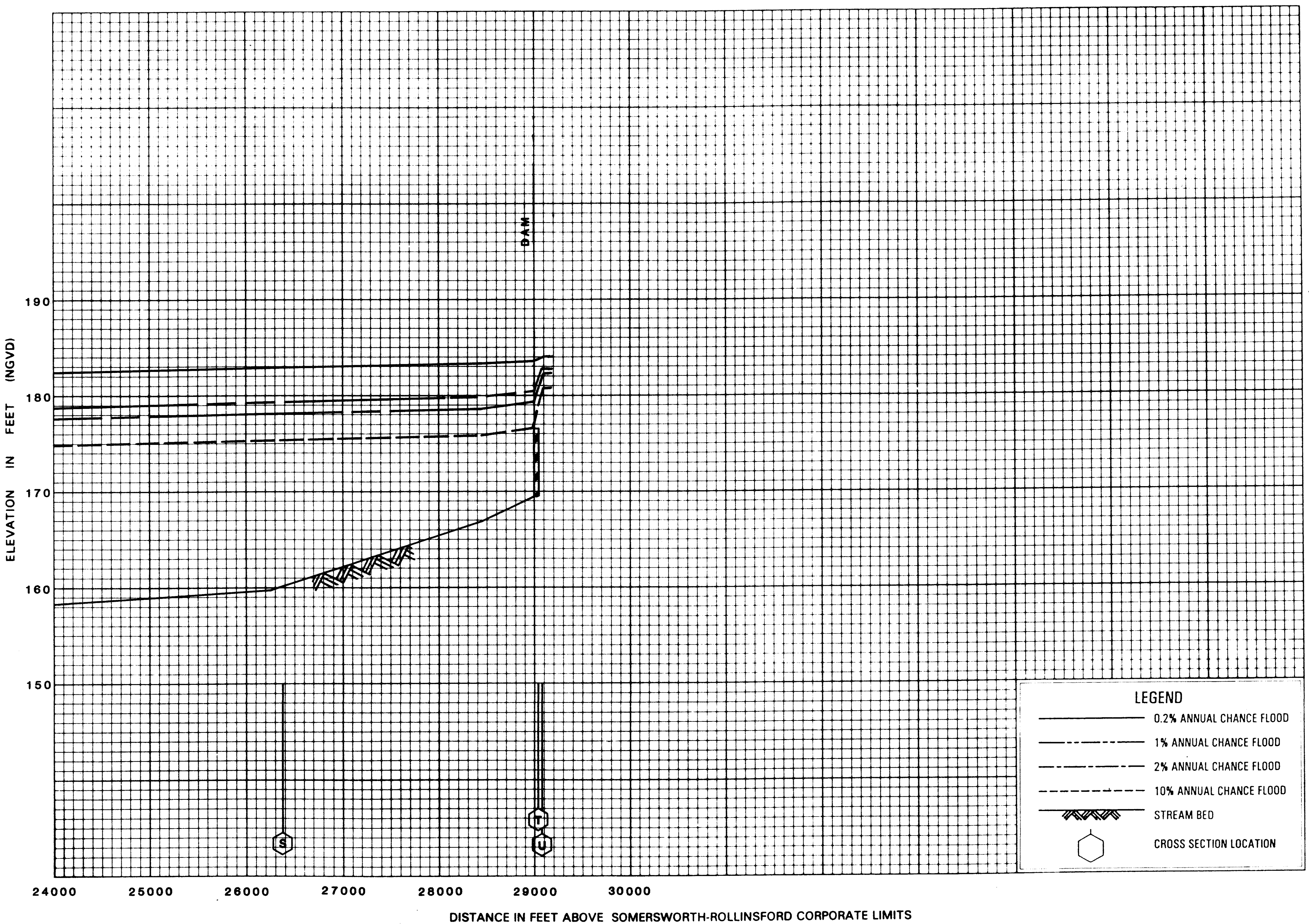


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

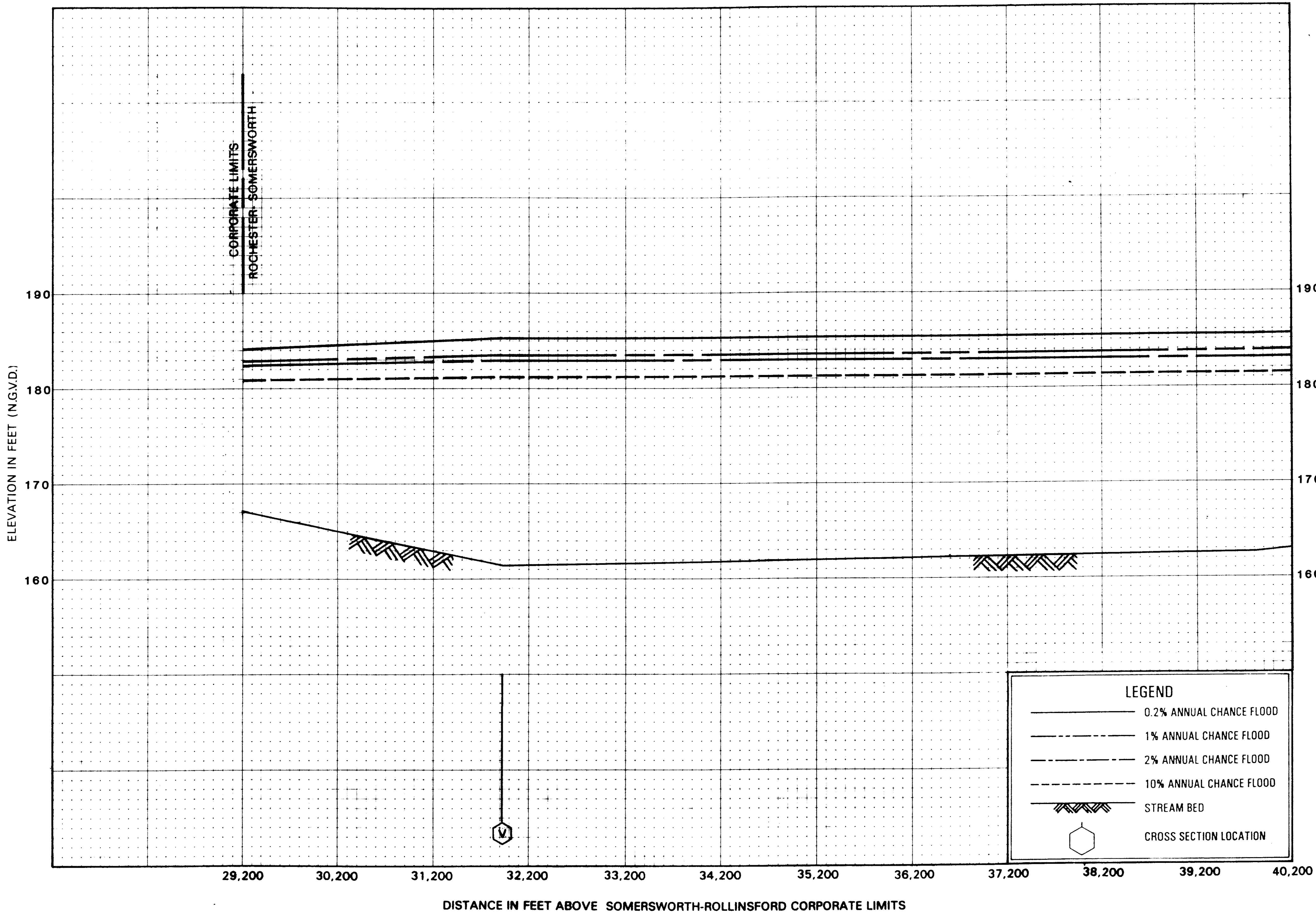


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

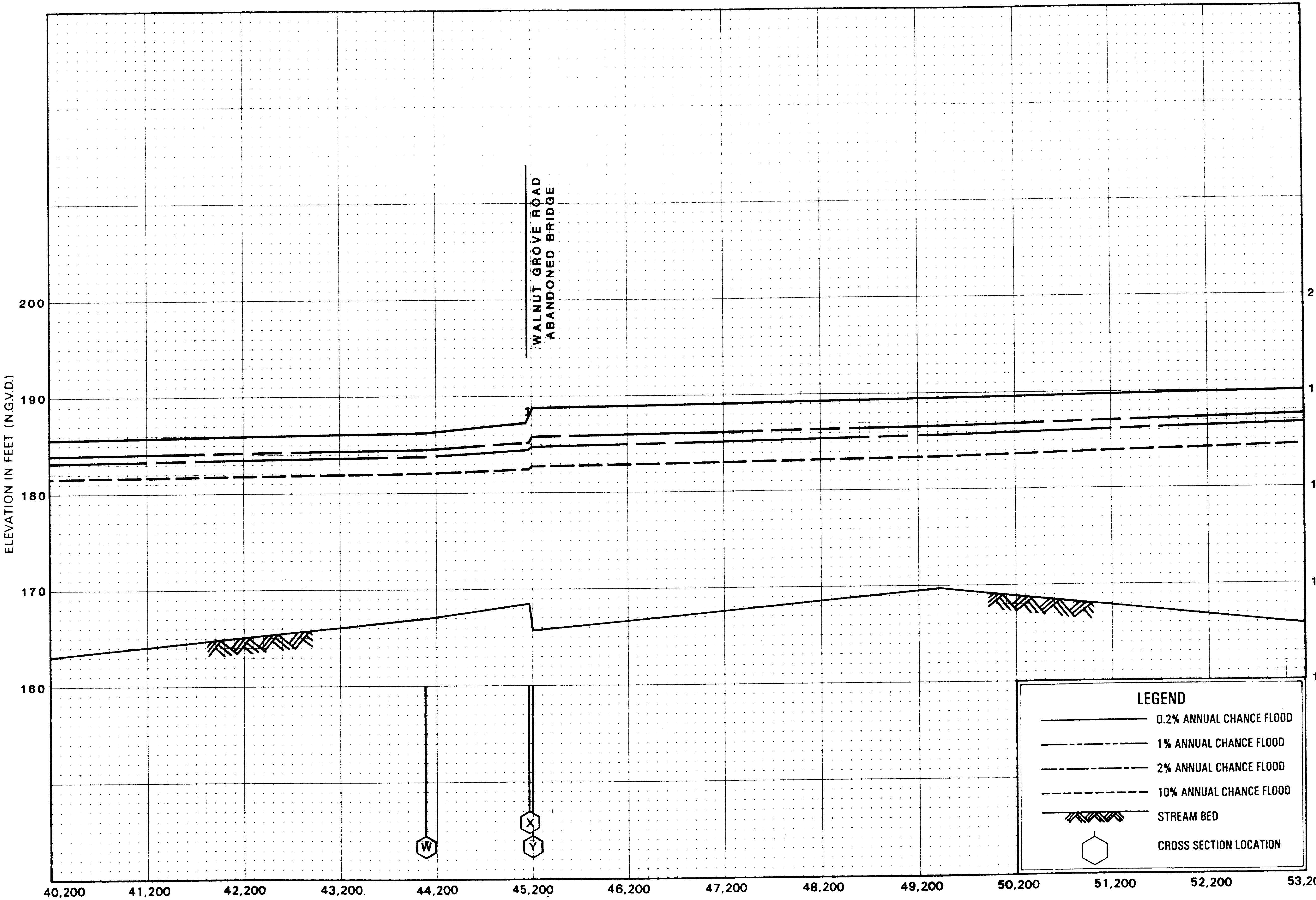


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



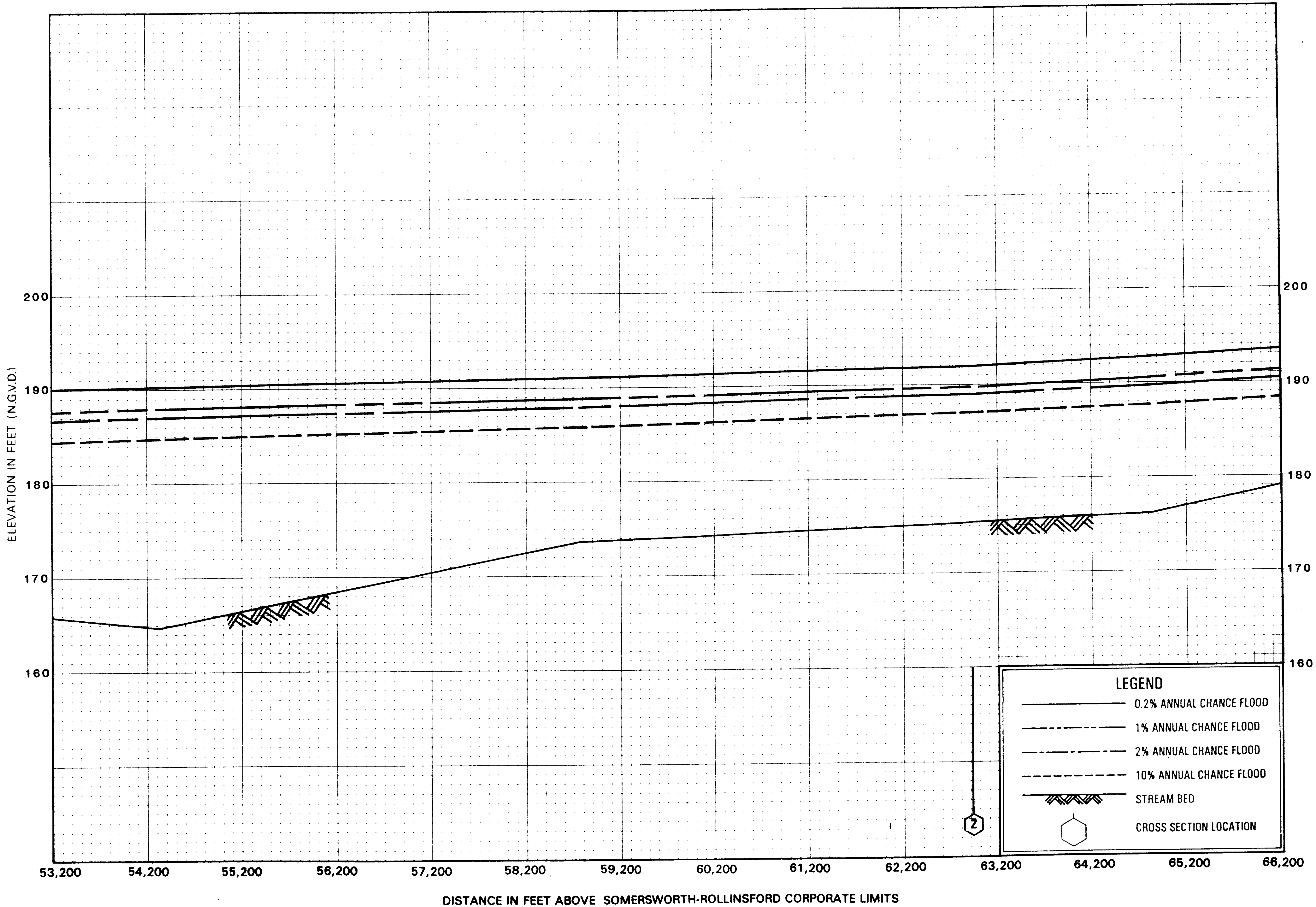
DISTANCE IN FEET ABOVE SOMERSWORTH-ROLLINSFORD CORPORATE LIMITS

FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

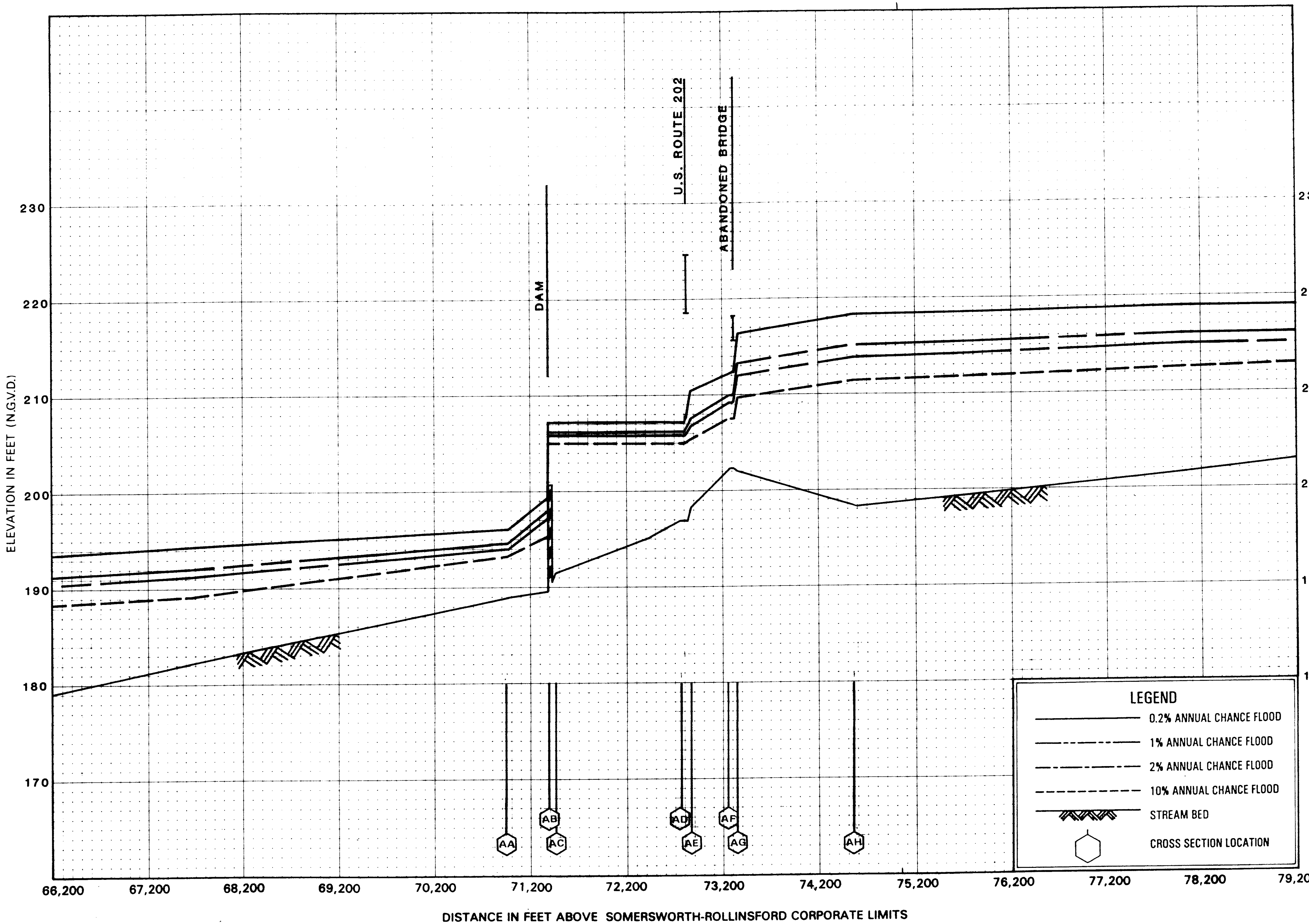


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



FLOOD PROFILES

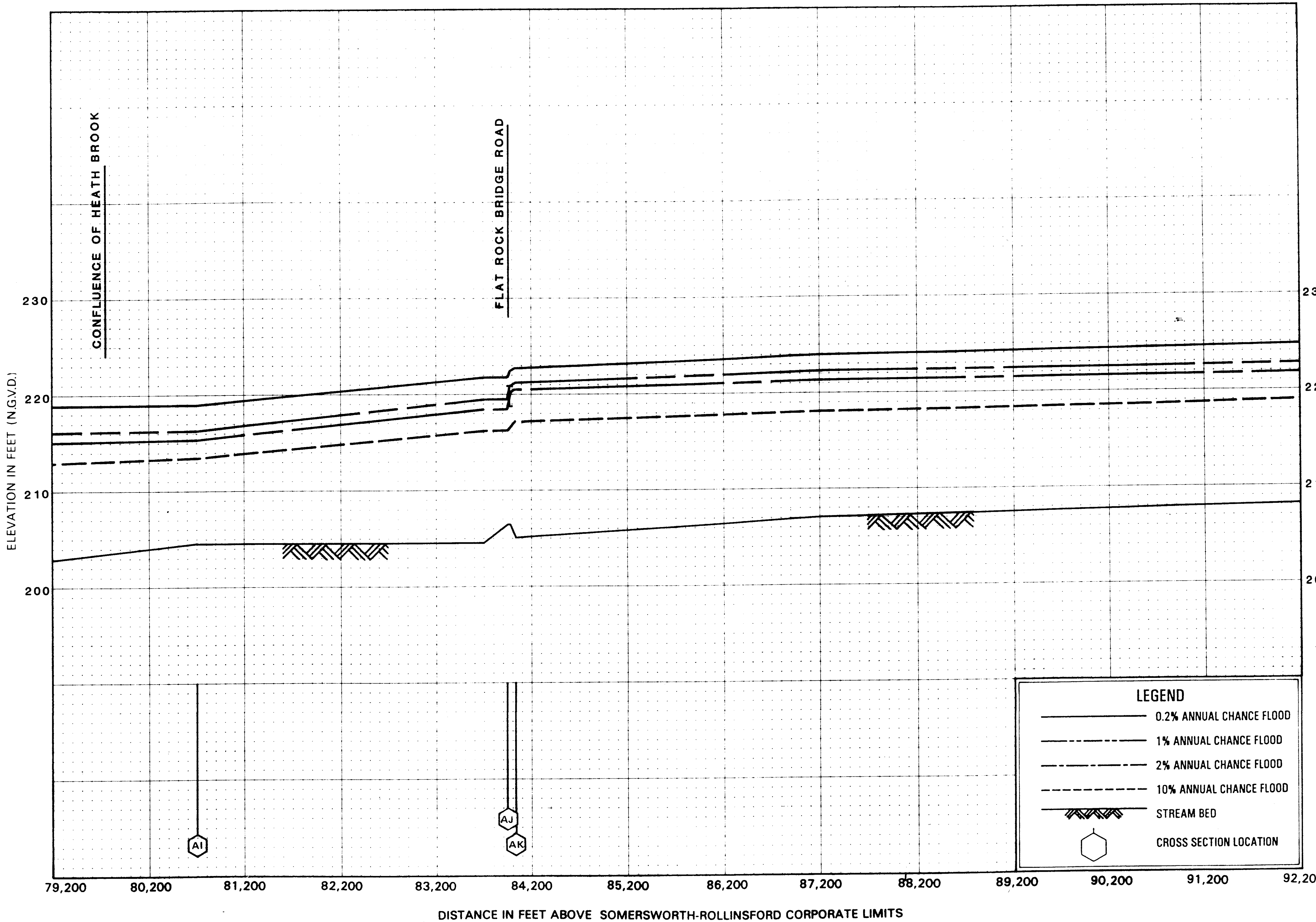
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

60P



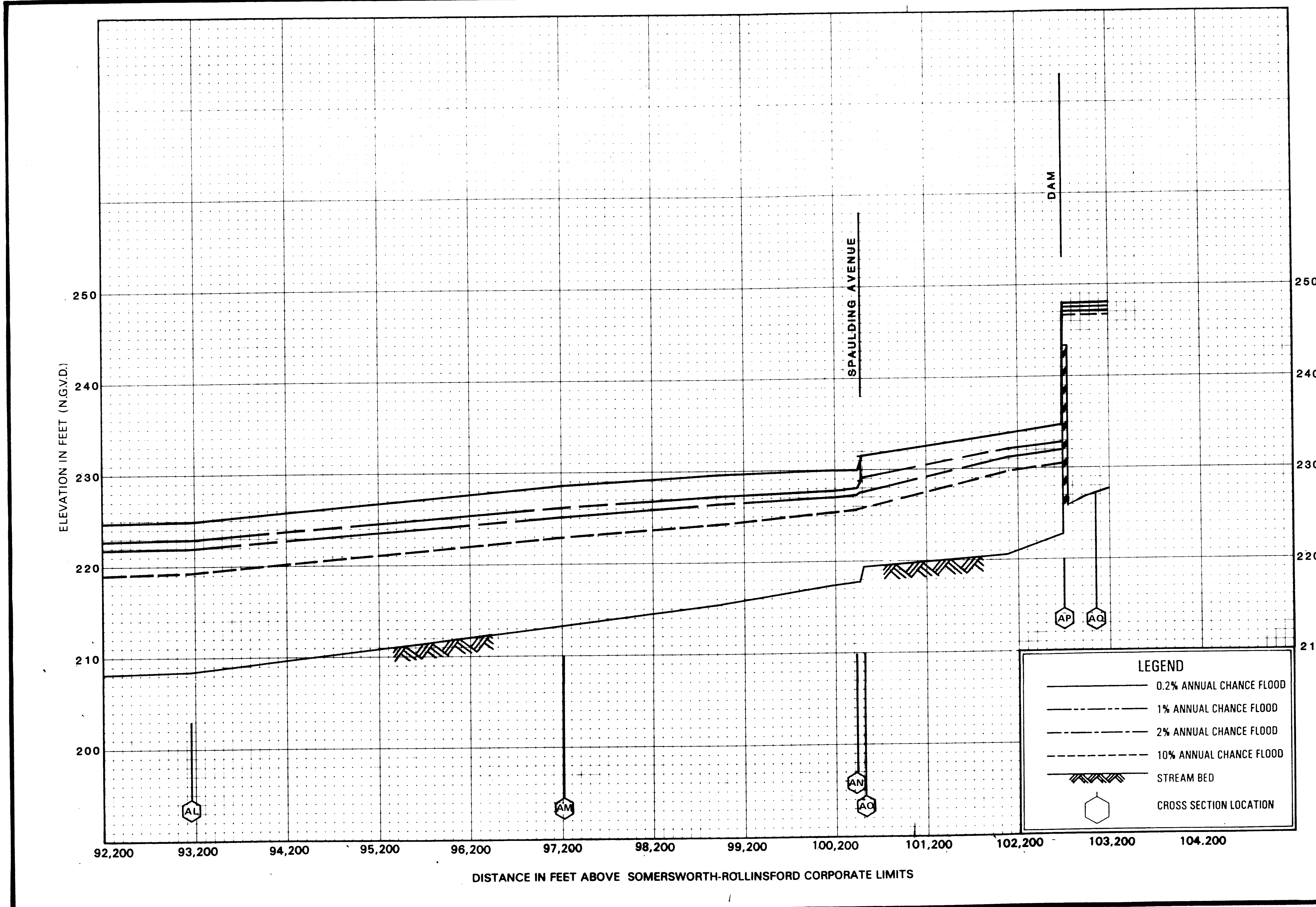
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



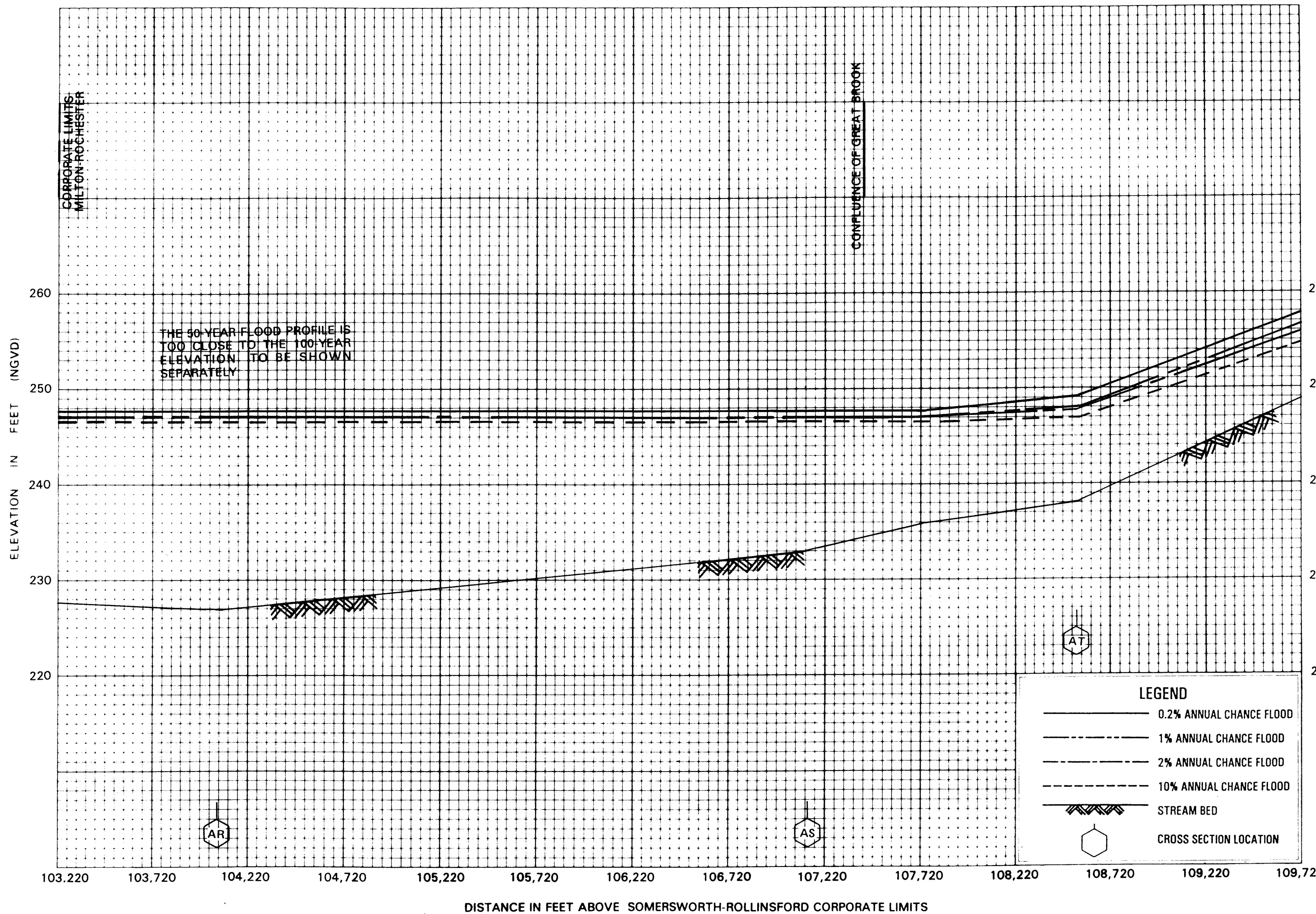
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



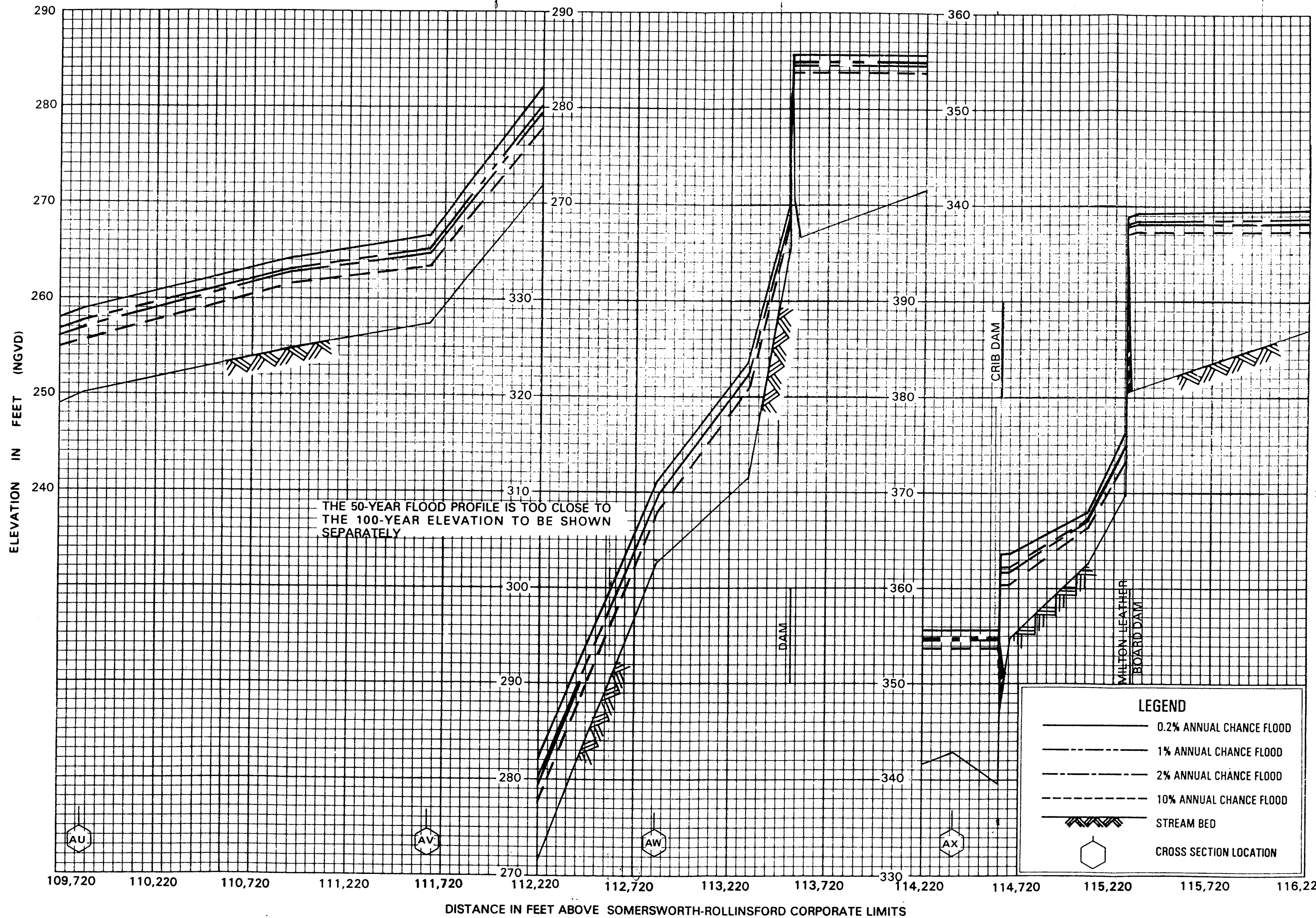
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

N342456



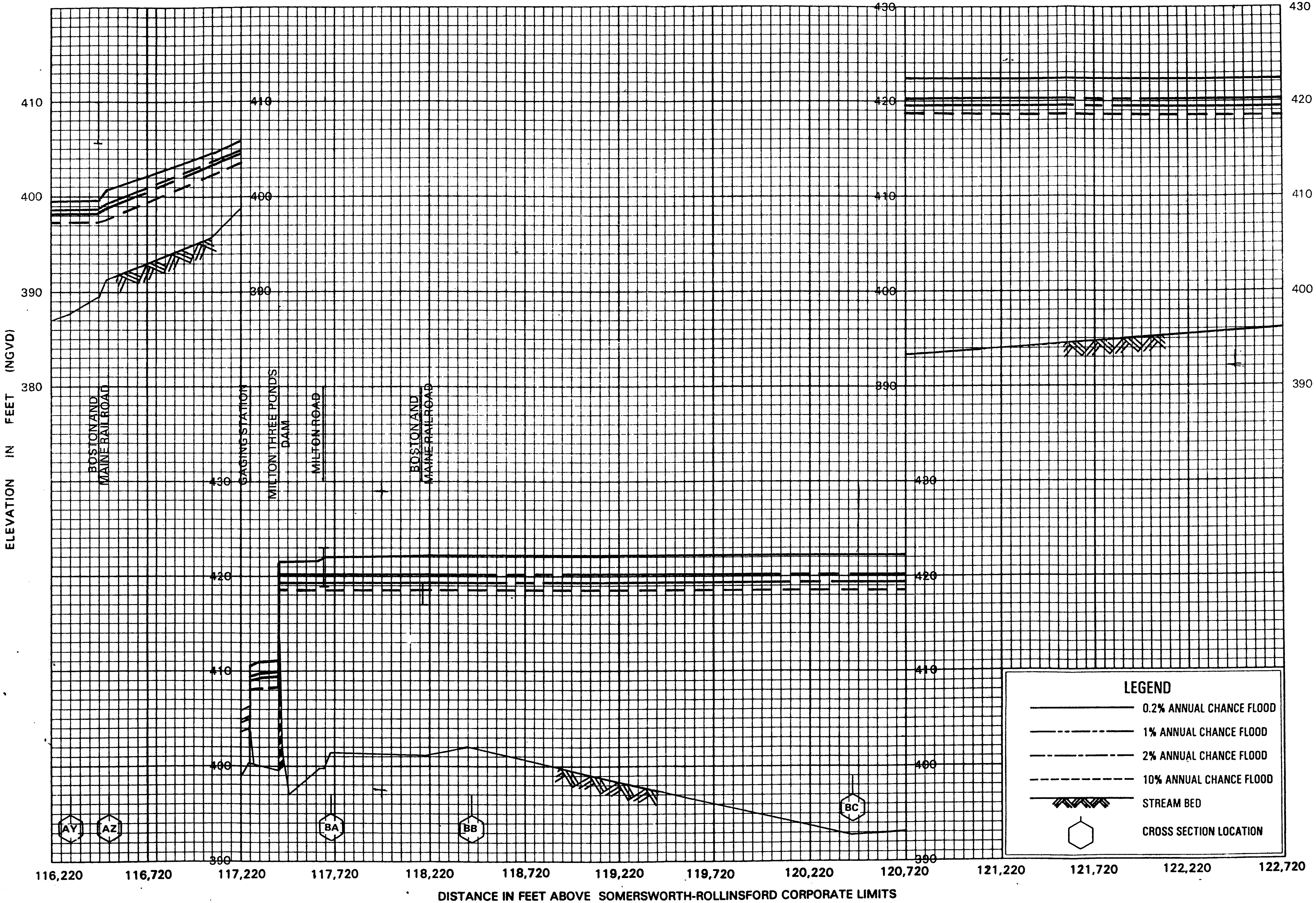
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



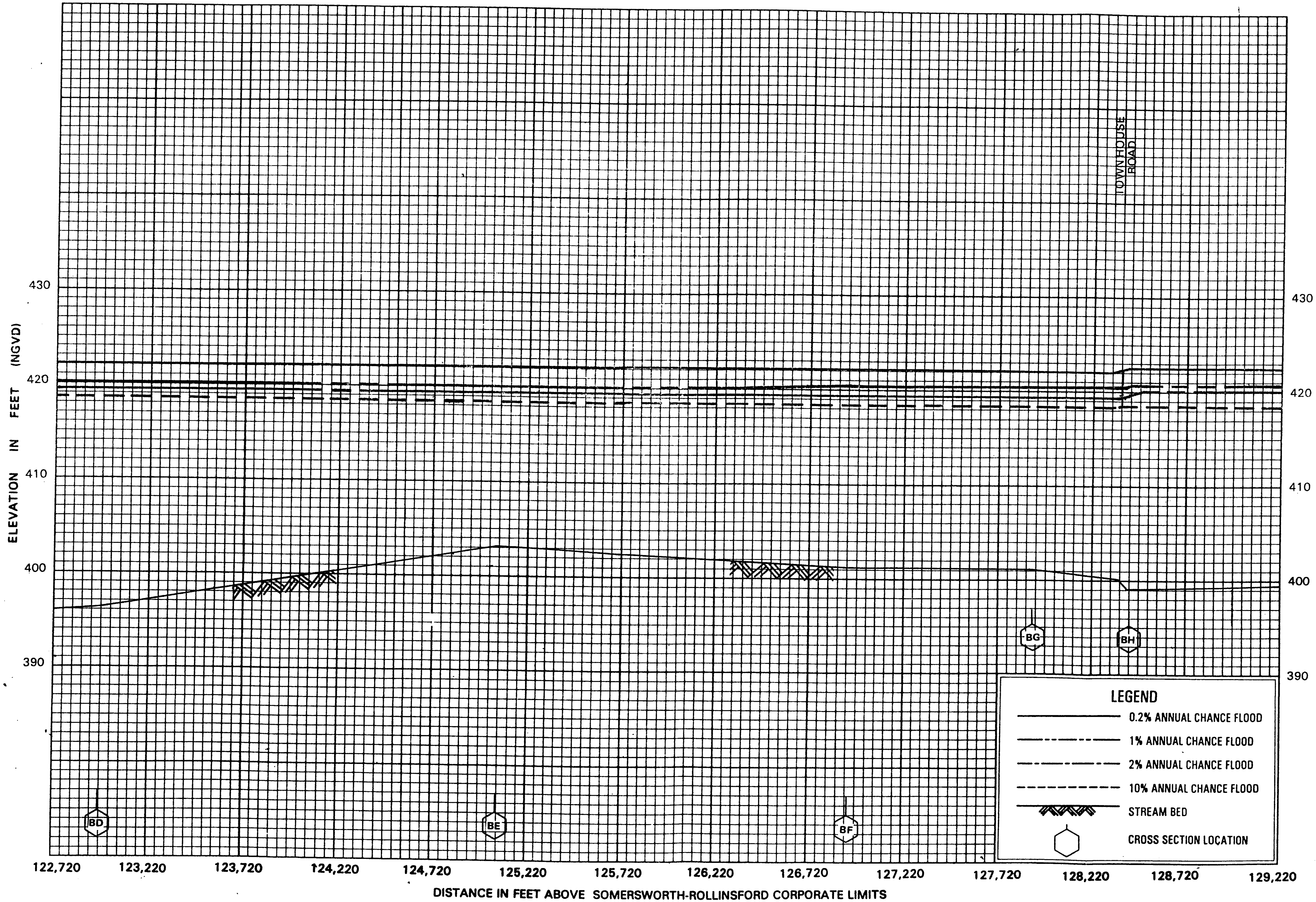
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

SALMON FALLS RIVER

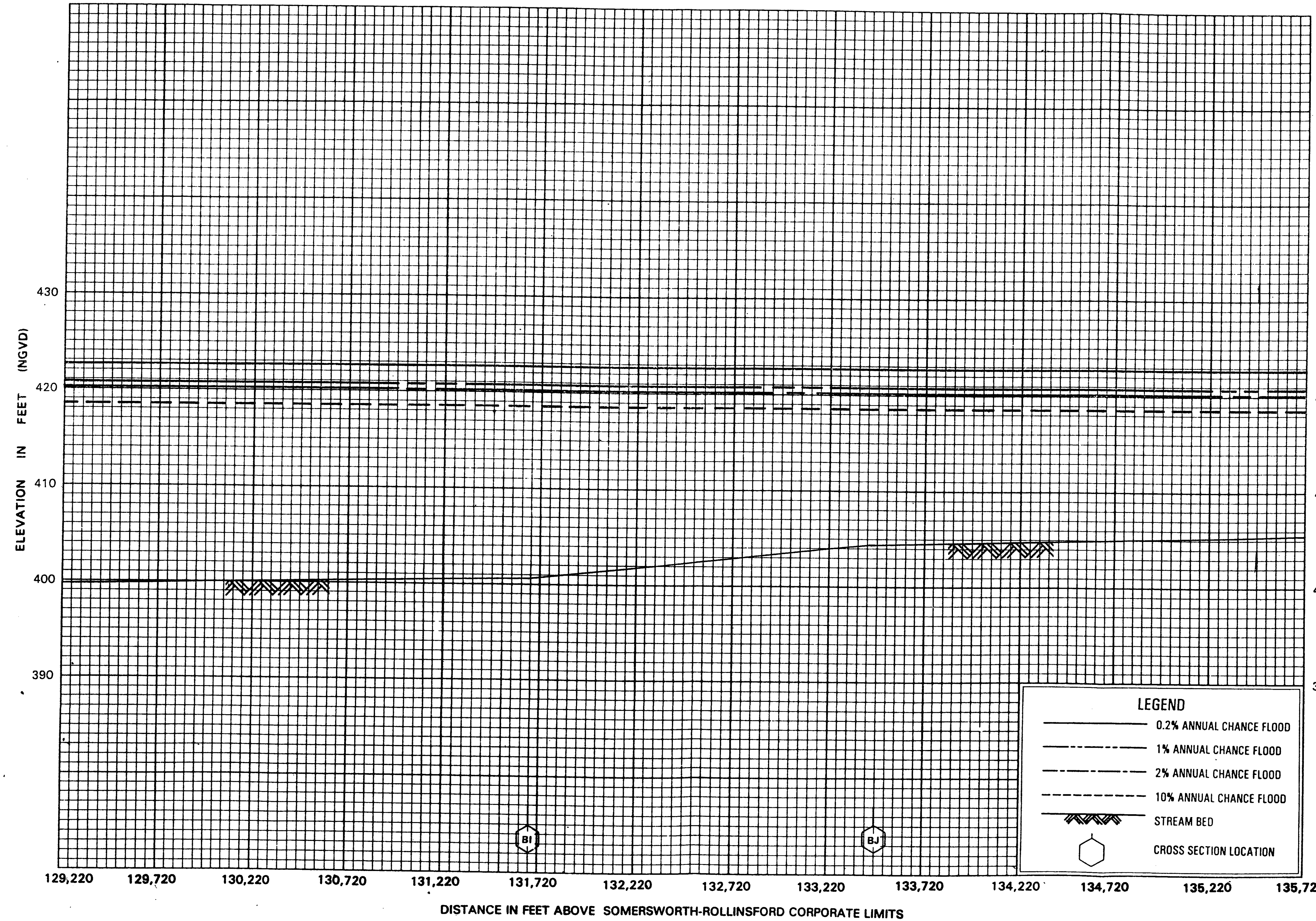
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

66P

124486



FLOOD PROFILES

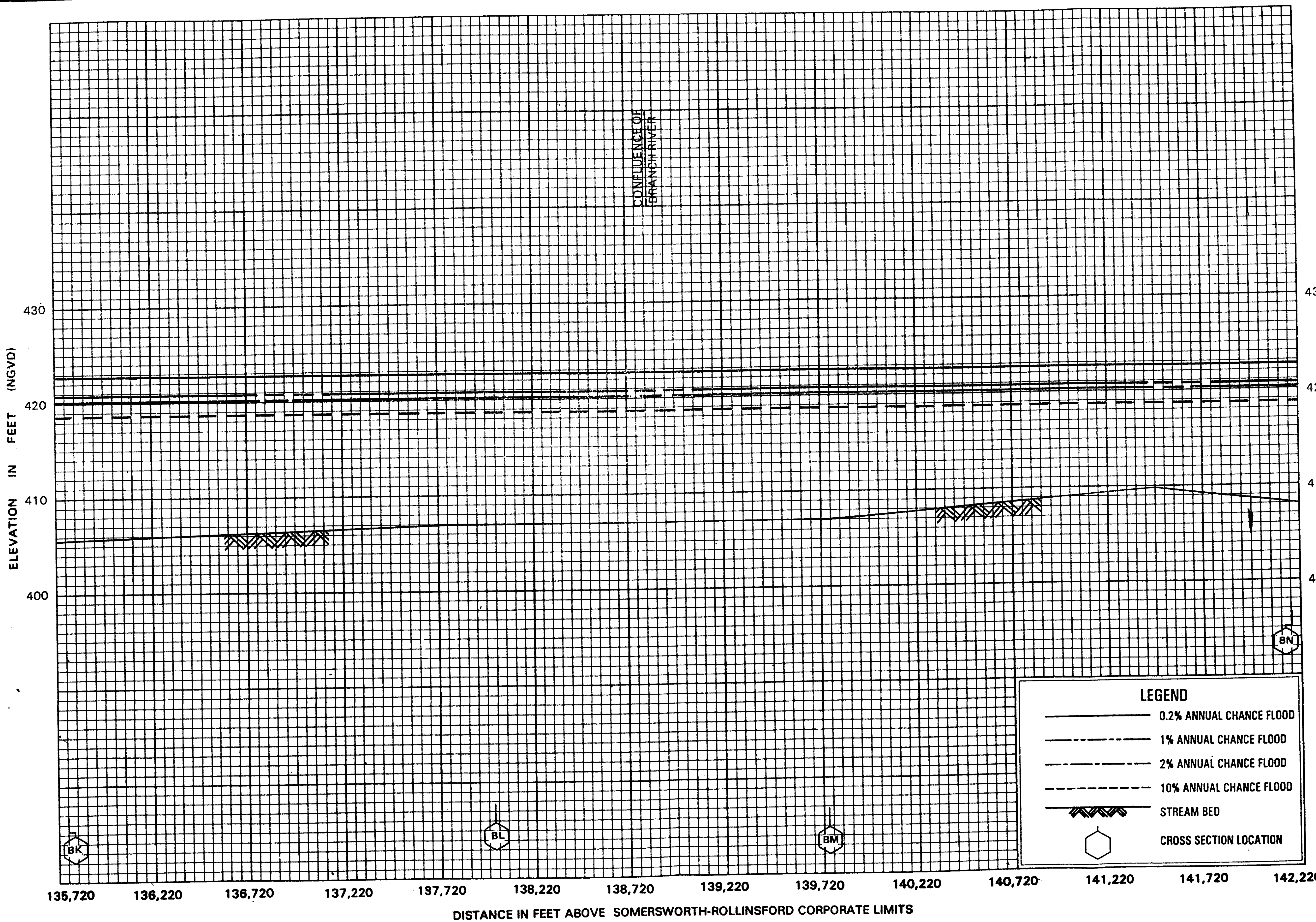
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

124486



FLOOD PROFILES

SALMON FALLS RIVER

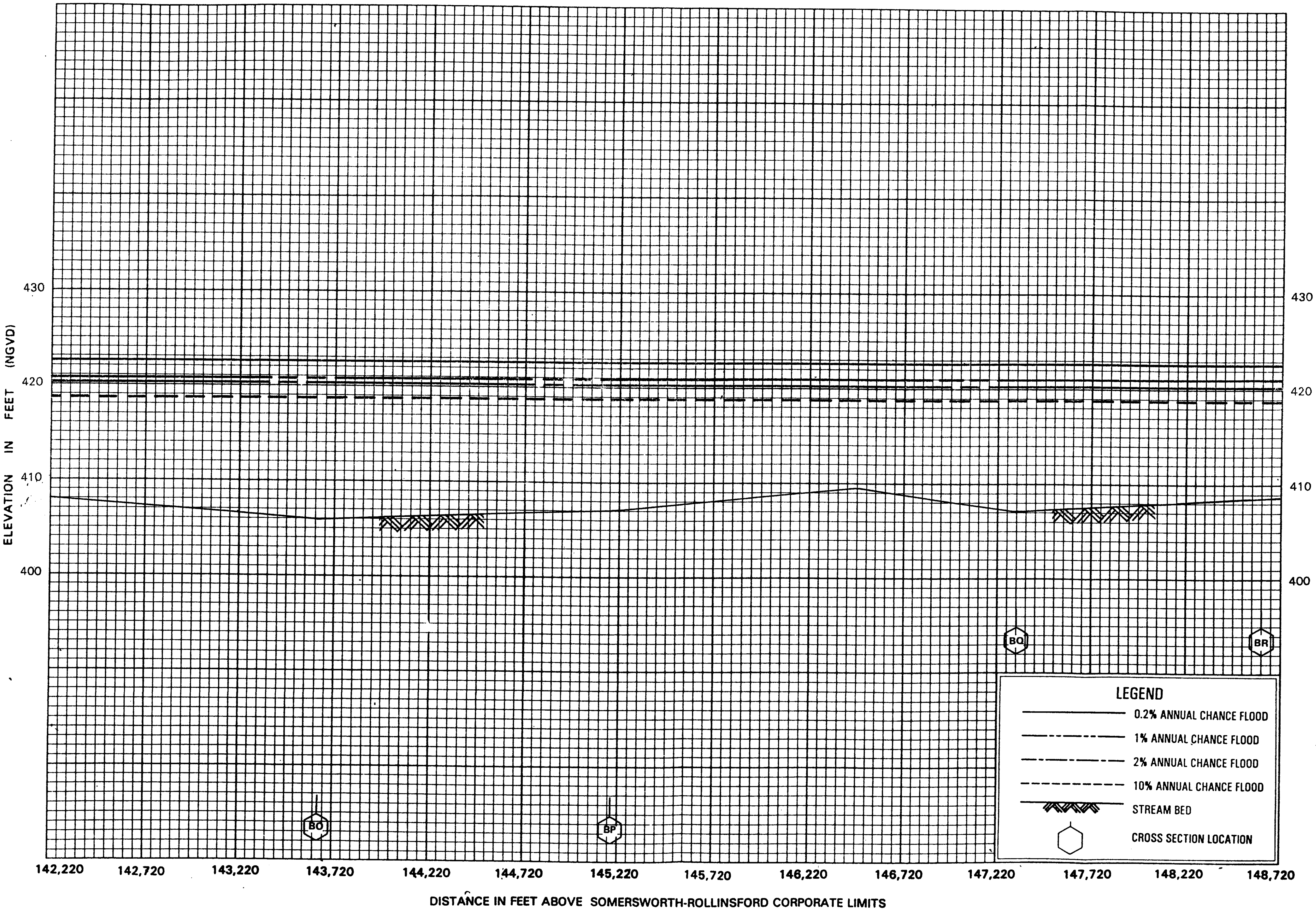
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

68P

12448



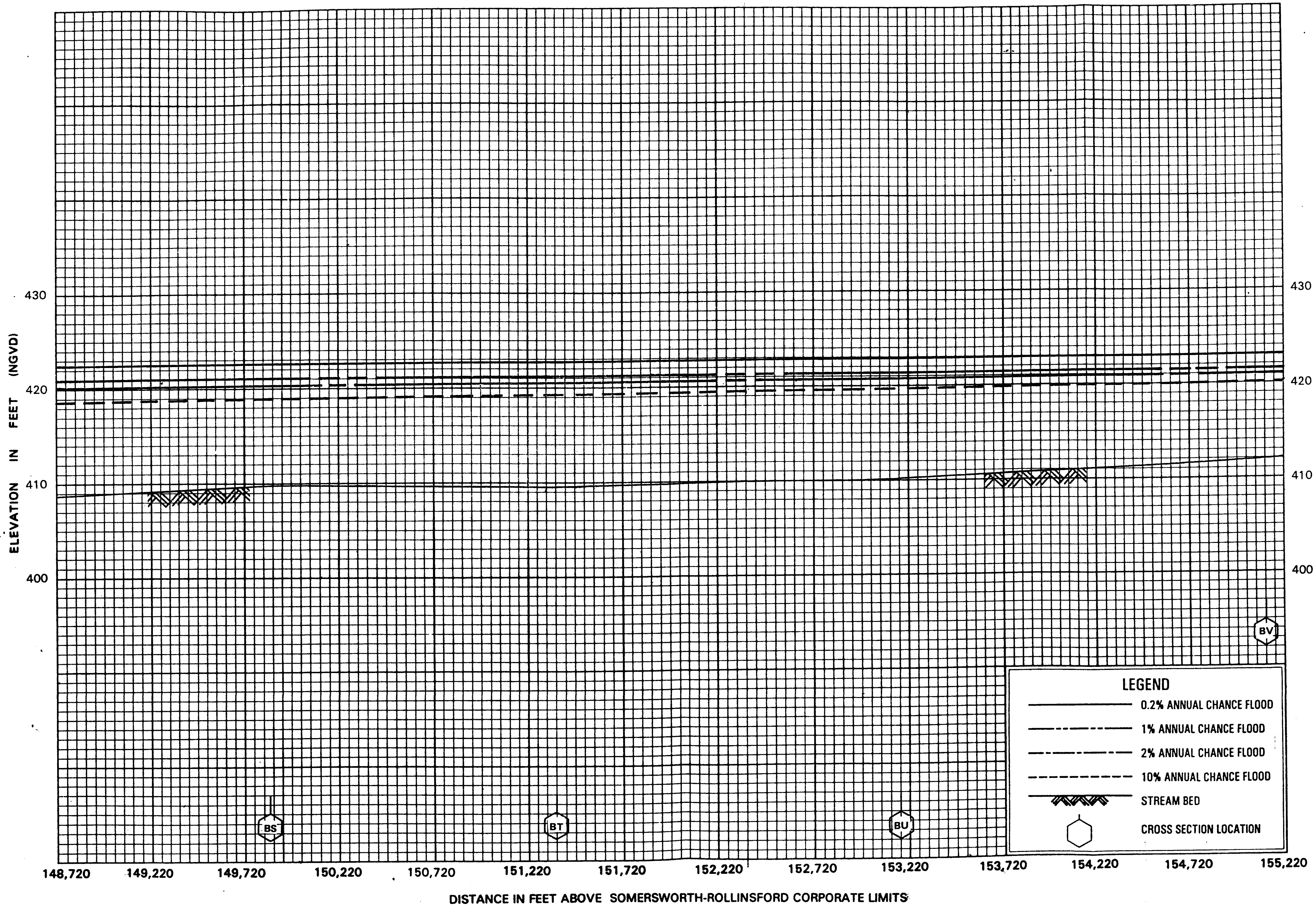
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



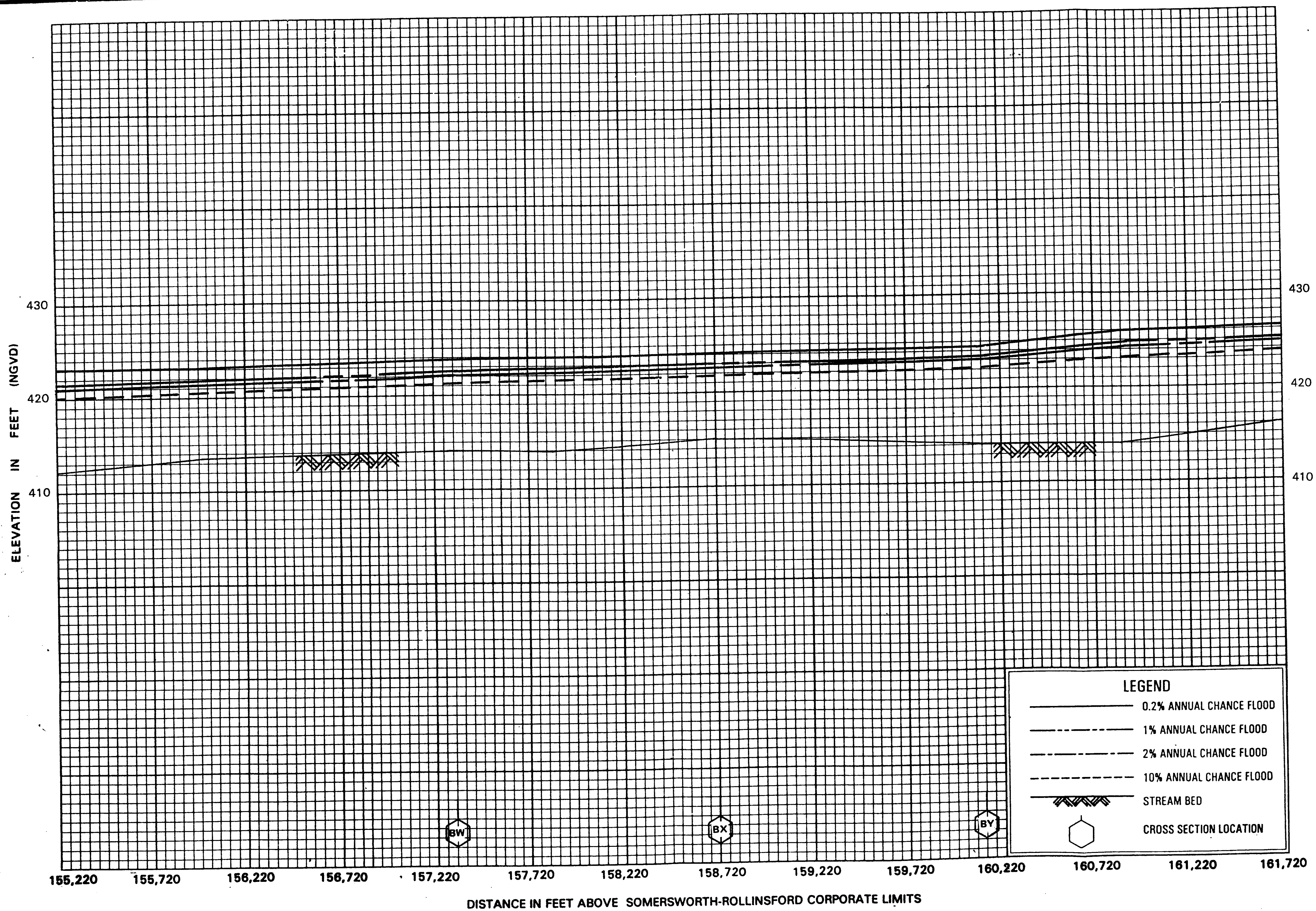
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



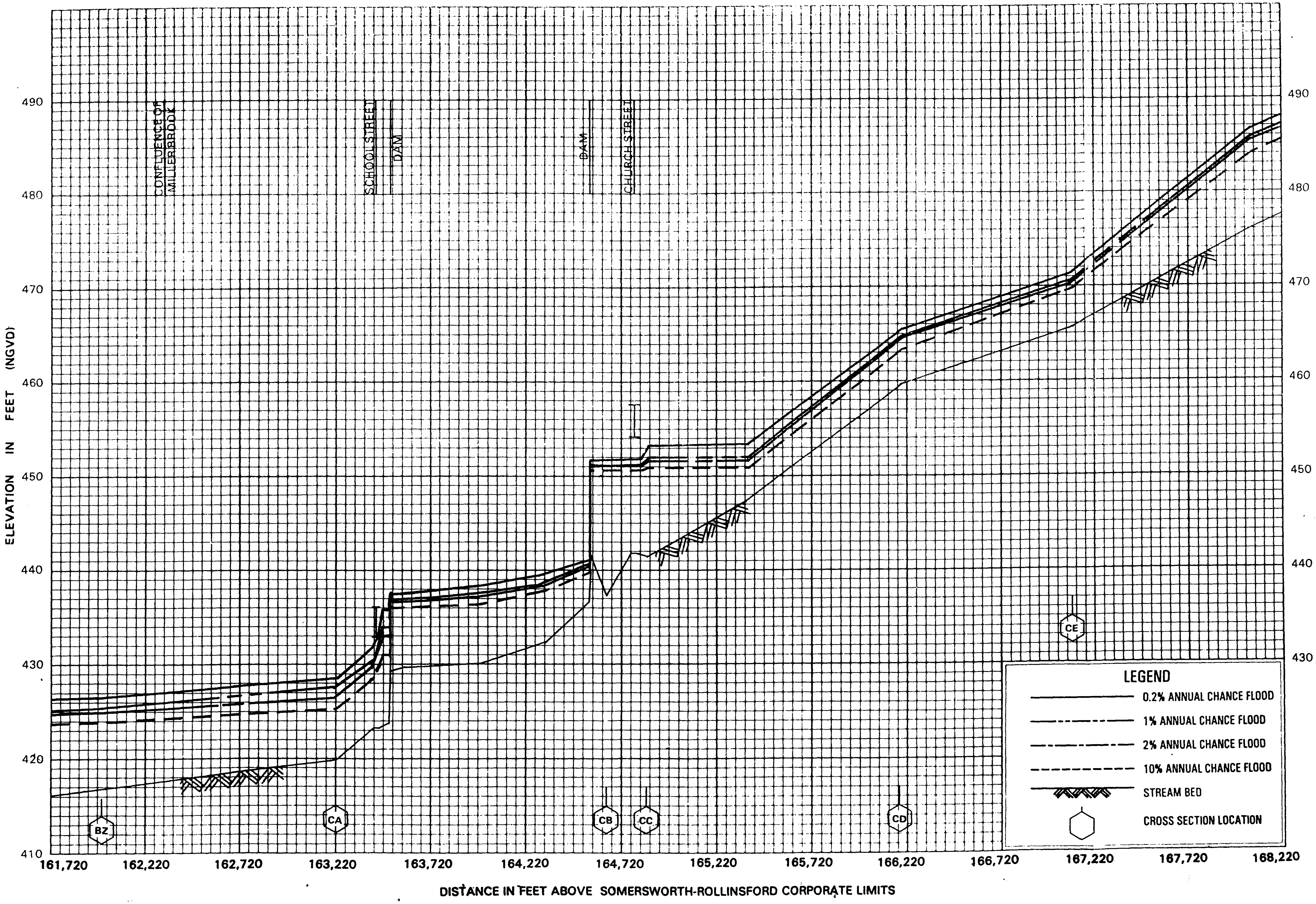
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

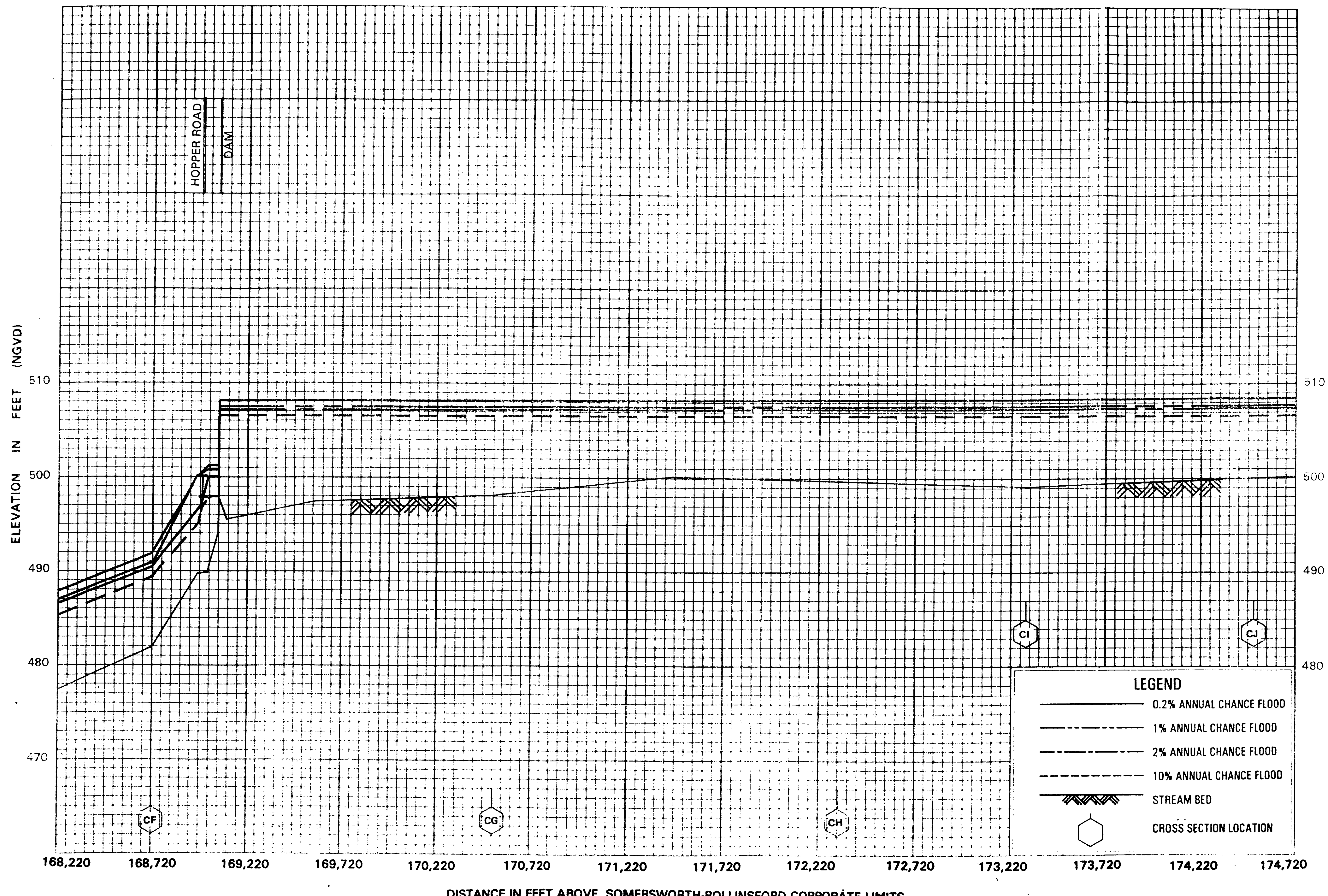


FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOOD PROFILES

SALMON FALLS RIVER



FLOOD PROFILES

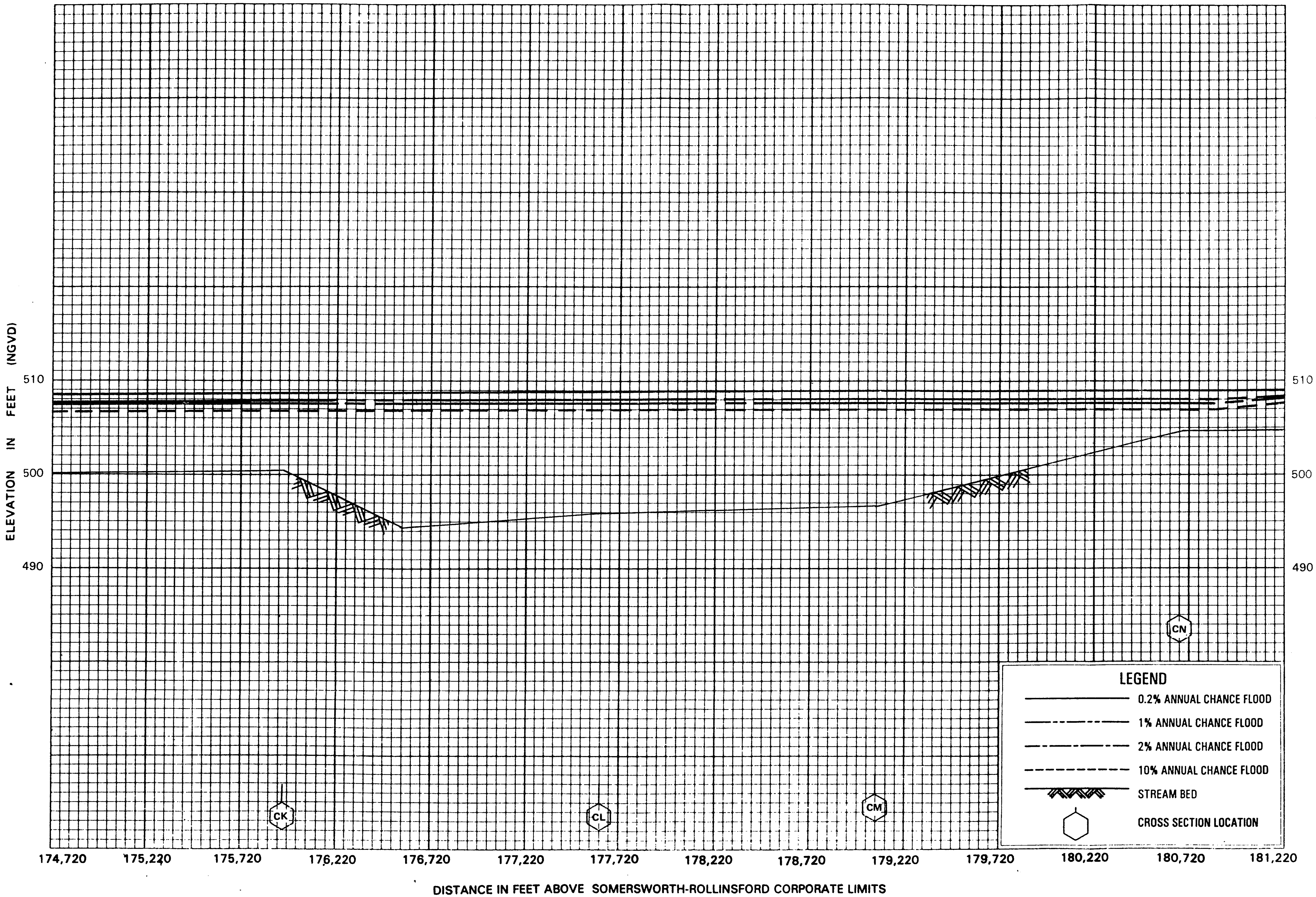
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

73P

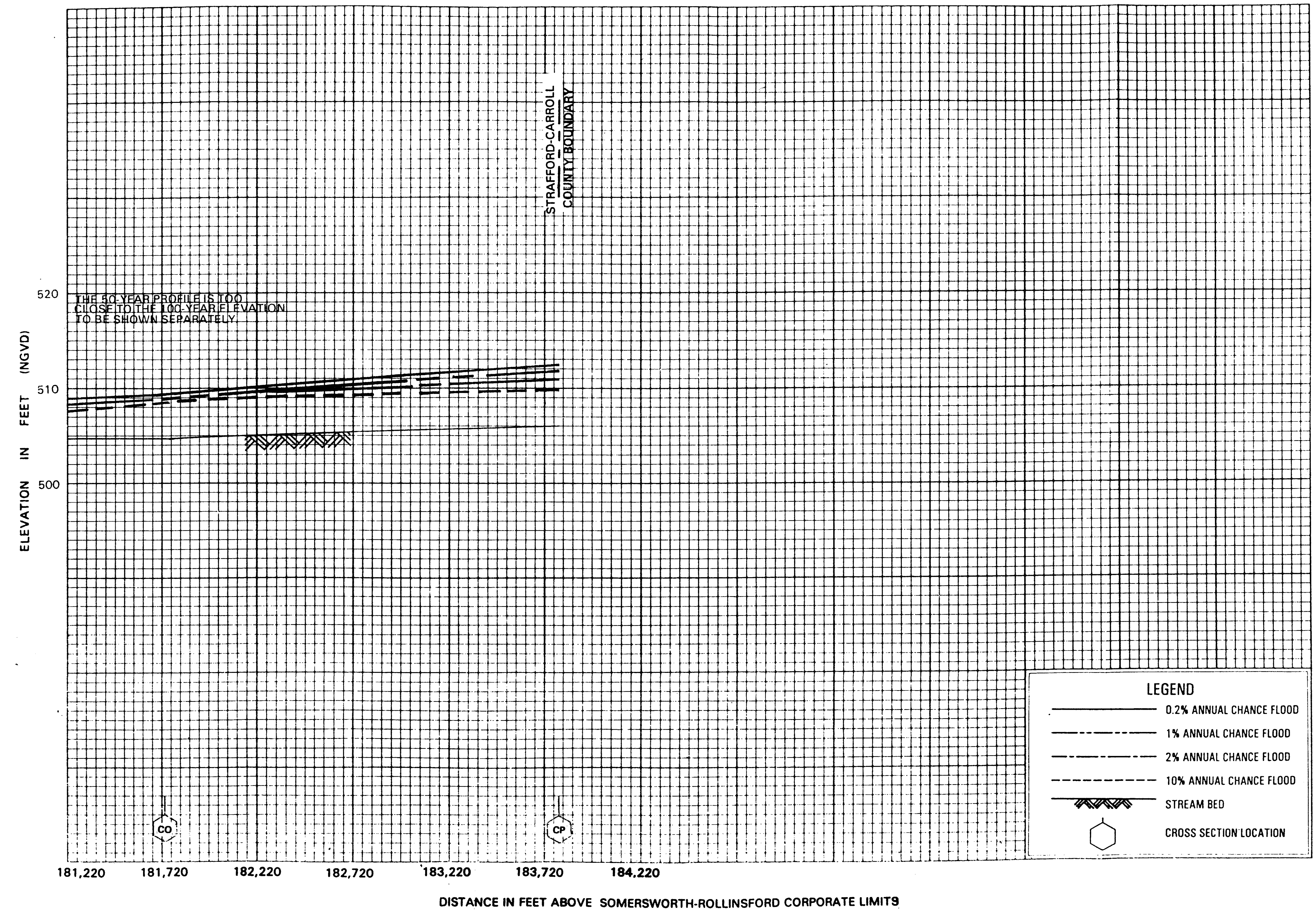


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)